

# Preventing and Reducing Illicit Tobacco Trade in the United States



National Center for Chronic Disease Prevention and Health Promotion  
Office on Smoking and Health





# TABLE OF CONTENTS

---

<b>Executive Summary</b> .....	<b>5</b>
Overview .....	5
Background .....	5
How this Report Was Developed .....	5
Key Findings.....	6
Key Conclusions.....	6
<b>Introduction and Background</b> .....	<b>7</b>
Terminology .....	7
Measuring Tax Avoidance and Evasion.....	7
Extent of Tax Avoidance and Evasion.....	8
Determinants of Tax Avoidance and Evasion in the United States.....	10
Tax Harmonization.....	14
Potential Impact of Tax Harmonization .....	15
<b>Measures to Prevent and Reduce Illicit Trade</b> .....	<b>17</b>
Identifying Relevant Measures .....	17
Overarching Elements of Comprehensive Approach to Eliminate Illicit Trade .....	19
Comprehensive Federal Approach .....	19
Comprehensive State/Local Approach .....	21
Potential Impact of Comprehensive Approaches to Eliminate Illicit Trade .....	22
<b>Individual Elements of a Comprehensive Approach to Reduce Illicit Trade</b> .....	<b>25</b>
Federal Track-and-Trace System.....	25
Potential Impact of Track and Trace.....	28
State Measure: Three-Legged Stool (Licensing, Product Markings, and Enforcement).....	28
Licensing .....	28
Tax Stamps and Other Product Markings .....	29
Federal and State Public Education Efforts .....	33
Potential Impact of Public Education.....	34
Tribal Tobacco Policies .....	34
Potential Impact of Policies Addressing Tribal Sales .....	38
Enhancing Surveillance and Evaluation .....	39
<b>Conclusions</b> .....	<b>41</b>
<b>References</b> .....	<b>43</b>



## Overview

This executive summary abridges the Centers for Disease Control and Prevention (CDC) report, *Preventing and Reducing Illicit Tobacco Trade*. The purpose of the report is to provide a brief assessment of illicit tobacco trade in the United States and options at different levels of government for preventing and reducing these tax avoidance and evasion activities.

## Background

Tobacco use is the leading cause of preventable disease and death in the United States, and results in more than 480,000 premature deaths and nearly \$300 billion in direct health care expenditures and productivity losses annually (US Department of Health and Human Services, 2014). Comprehensive tobacco control strategies include higher pricing, smoke-free policies, mass media campaigns, barrier-free access to cessation tools, and state and community programs to reduce the prevalence of tobacco use.

Increasing the price of tobacco products is one of the most effective means of preventing tobacco use, particularly among price-sensitive populations, such as youth (Chaloupka et al., 2012). Illicit tobacco trade (illicit trade) can undermine the effectiveness of raising tobacco prices by increasing the accessibility and affordability of tobacco products (Joossens and Raw, 2012). An estimated 8% to 21% of the approximately 264 billion (in 2014) (Maxwell, 2015) cigarettes consumed in the United States avoid or evade taxes, which equates to \$2.95 billion to \$6.92 billion in lost local and state revenues annually (National Research Council [NRC] and Institute of Medicine [IOM], 2015).

Globally, the illicit tobacco market is dominated by smuggling across international borders. However, in the United States, illicit trade primarily occurs when cigarettes are bought in jurisdictions with lower or no excise taxes for individual consumption (tax avoidance) or bought in low-tax jurisdictions and resold in high-tax jurisdictions, often through larger, organized crime efforts (tax evasion).

## How this Report Was Developed

This report was compiled by a team of subject matter experts and researchers working together with the Tobacconomics program at the University of Illinois at Chicago. To avoid duplication of effort with the recent NRC/IOM report, *Understanding the U.S. Illicit Tobacco Market: Characteristics, Policy Context, and Lessons from International Experiences*, this report summarizes key literature, but refers the reader to the NRC/IOM report for additional detail.

---

### Lead Author

Frank J. Chaloupka, PhD, Department of Economics and Institute for Health Research and Policy, School of Public Health, University of Illinois at Chicago

### Co-Authors

Sarah Matthes Edwards, MSPH, Centers for Disease Control and Prevention, Office on Smoking and Health

Hana Ross, PhD, University of Cape Town, Cape Town, South Africa

Megan Diaz, MA, Institute for Health Research and Policy, School of Public Health, University of Illinois at Chicago

Marin Kurti, MA, Rutgers University School of Criminal Justice

Xin Xu, PhD, Centers for Disease Control and Prevention, Office on Smoking and Health

Mike Pesko, PhD, Weill Cornell Medical College

David Merriman, PhD, Institute of Government and Public Affairs and Department of Public Administration, University of Illinois, Chicago

Hillary DeLong, JD, Institute for Health Research and Policy, School of Public Health, University of Illinois at Chicago

## Key Findings

- Significant increases in state and local tobacco taxes generate reductions in tobacco use and raise tobacco tax revenues for the jurisdiction, despite the tax avoidance and evasion that results from significant tax and price differentials in the United States.
- Preventing and reducing illicit tobacco trade may increase the health and economic benefits of raising unit prices of tobacco products, including further decreasing tobacco use, decreasing health costs, decreasing economic costs, and decreasing federal spending.
- A number of countries around the world, ranging from developing to developed countries, have implemented measures to combat illicit tobacco trade.
- A comprehensive approach at the national level to curb illicit trade includes
  - » Enhancing coordination and enforcement efforts and strengthening penalties for those engaged in illicit tobacco trade.
  - » Implementing a track-and-trace system.
  - » Conducting public education.
- Countries successful in curbing illicit trade have prioritized this issue across government and used a comprehensive approach comprising all measures that are relevant to their situation.
- A number of state, local, and tribal jurisdictions have implemented measures to prevent and reduce illicit tobacco trade; these measures could be implemented in other states, municipalities, and tribes.
- A comprehensive approach at state and local levels to curb tax evasion includes
  - » Enhancing coordination and enforcement efforts and strengthening penalties for those engaged in illicit tobacco trade.
  - » Adopting a “three-legged stool” strategy comprising licensing and enforcement (and associated penalties) of tobacco supply and distribution chain, tax stamps, and other product markings.
  - » Conducting public education.
  - » Implementing policies for sale of tobacco products on tribal lands.
- Tax harmonization, an intervention to lessen disparities in interstate tax rates across US states, would lead to increased revenues, increased cessation and reduced tobacco consumption, lower uptake among youth, and reduced federal spending on tobacco-related conditions and diseases through Medicaid, Medicare, and other public health insurance programs if it raised taxes in low-tax states.
- Comprehensive tobacco prevention and control practices, including regulation, are effective in reducing death and disease caused by tobacco. Implementing measures to reduce illicit trade should not impede continued efforts to put effective, evidence-based tobacco control and regulatory interventions in place in the United States.

## Key Conclusions

Governments that have adopted and implemented some combination of enhanced coordination, enforcement, and penalties; track-and-trace systems; licensing; high-tech tax stamps; tribal tobacco sales policies; public education efforts; and tax harmonization have been successful in curbing illicit tobacco trade. The more comprehensive and coordinated approaches have been more effective in addressing this problem. A collaborative, comprehensive approach at the federal, state, local, and tribal levels could similarly reduce the US illicit tobacco trade problem and strengthen existing and future comprehensive tobacco prevention and control work.

## INTRODUCTION AND BACKGROUND

Extensive research demonstrates the effectiveness of tax and price policies in reducing tobacco use and its health and economic consequences (International Agency for Research on Cancer [IARC], 2011; Chaloupka et al., 2012). IARC and the World Bank have concluded that illicit tobacco trade limits the effectiveness of increased tobacco product taxes in reducing tobacco use and its consequences, and costs governments millions of dollars in lost revenue (IARC, 2011; World Bank, 1999). Sizable illicit tobacco markets can undermine the effectiveness of other tobacco control policies, including limits on youth access to tobacco products, packaging and labeling policies, and strong product regulations, while fostering crime and adversely affecting compliant retailers (NRC and IOM, 2015).

### Terminology

Different entities are involved in addressing illicit tobacco, and the language used in the public health field may differ from that used in regulatory, law enforcement, or revenue fields.

In its 2010 report on this topic, the US Department of Treasury Tobacco Tax Bureau (TTB) noted that, “The terms ‘smuggling,’ ‘tax evasion,’ ‘diversion,’ ‘illicit trade,’ and ‘trafficking’ are often used interchangeably although these terms may also have very specific and distinct meanings in certain circumstances” (US Department of the Treasury, 2010). The Treasury used all five terms in its report to describe activities where tobacco products are manufactured and/or distributed outside of legal channels and therefore result in tax evasion; for consistency and clarity, this report takes a similar approach.

Because of public health’s interest in monitoring tobacco purchasing patterns via various surveillance and research tools, the term “tax avoidance” is used to distinguish between individual behavior and larger-scale criminal activity such as purchasing large quantities of tobacco products in lower-tax jurisdictions for resale in higher-tax jurisdictions (tax evasion, also referred to as “bootlegging”). Tax avoidance refers to individuals buying cheaper tobacco products in a neighboring jurisdiction, for example tribal sales or a nearby state with lower taxes, and bringing them to their home jurisdiction for personal consumption—a legal activity unless statutory limits on purchases are exceeded.

### Measuring Tax Avoidance and Evasion

Given their largely illicit nature, tobacco tax avoidance and evasion are difficult to measure, and the mix of activities they comprise changes over time in response to tobacco control policies, enforcement efforts, tobacco industry behavior, and other factors. Researchers have developed multiple approaches

to assessing the extent of and trends in tobacco tax avoidance and evasion. These different approaches fall into three broad categories (IARC, 2011; NRC and IOM, 2015; Ross, 2015):

- Gap analyses: comparisons of survey data on self-reported consumption estimates to data from official tax-paid sales measures; econometric and other modeling that compares predictions of total consumption to tax-paid sales after accounting for factors that affect the demand for tobacco products; and comparisons of reported tobacco product exports to reported imports.
- Pack inspection measures: assessment of packs for markings indicating that taxes have been paid and/or that appropriate warning labels, other pack markings, and other features reflecting compliance with relevant tax and tobacco control policies are present. These are conducted through empty pack collections, pack swap or pack return surveys, and interviewer assessment of packs during face-to-face interviews.
- Survey methods: data collection from tobacco users about where they purchase tobacco products, what types of products they purchase, prices paid, and other factors that may reflect tax avoidance and evasion, as well as surveys of customs and law enforcement officials, public health authorities, tobacco industry representatives, tobacco control researchers, and other experts who can provide informed opinions about the extent of tax avoidance and evasion in a given market.

#### Definition of Illicit Trade

In the Protocol to Eliminate Illicit Trade in Tobacco Products, the World Health Organization (WHO) defines illicit trade as

“any practice or conduct prohibited by law and which relates to production, shipment, receipt, possession, distribution, sale or purchase, including any practice or conduct intended to facilitate such activity.” (Article 1.6; WHO, 2012)

It is important to note that each approach is subject to a variety of limitations and potential biases, and that a combination of several approaches is needed to understand the magnitude of the problem and the activities involved (Ross, 2015; NRC and IOM, 2015; IARC, 2011). Finally, nearly all evidence on tobacco tax avoidance and evasion is for cigarettes; very few estimates are available for other tobacco products.

### Extent of Tax Avoidance and Evasion

Globally, recent estimates suggest that 10% to 12% of cigarette consumption is illicit. The extent of the problem varies widely across countries (Joossens et al., 2009; Euromonitor International, 2015). Contrary to tobacco industry arguments (Joossens et al., 2009), the market share for illicit cigarettes at the country level appears to have little relationship to tax and price levels (**Figure 1**). Illicit cigarettes account for a greater share of consumption in countries with relatively low taxes and prices and account for a smaller share of consumption in markets with relatively high cigarette taxes and prices.

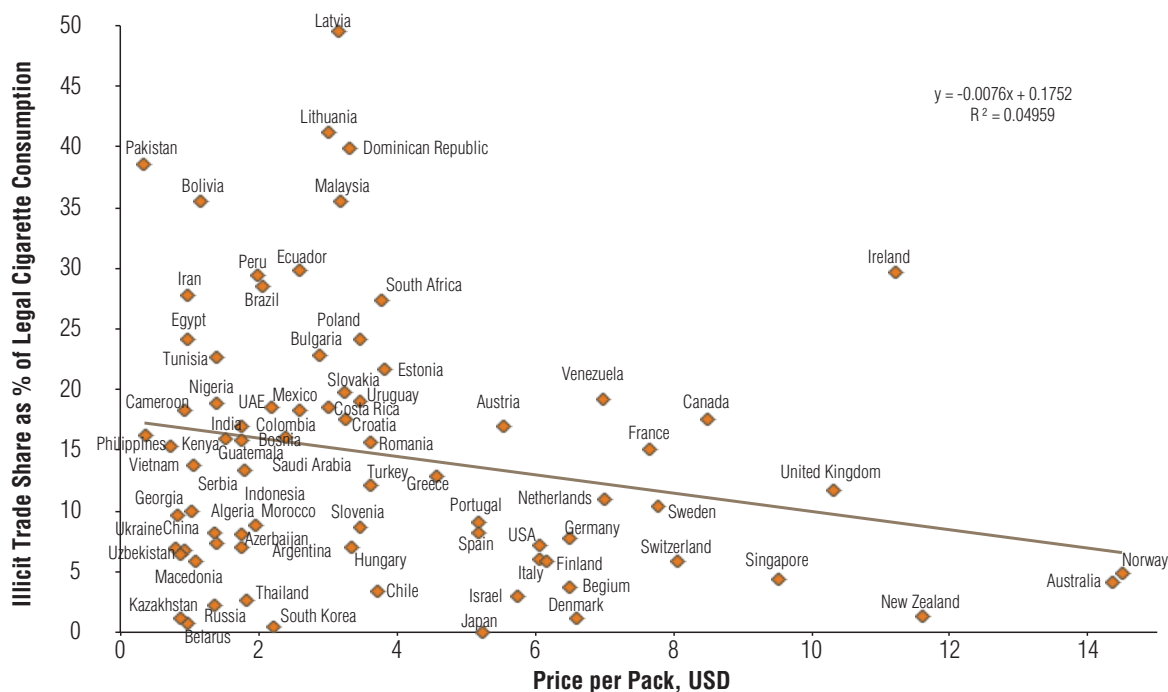
### Illicit Trade Misperceptions

Market share for illicit cigarettes at the country level appears to have little relationship to tax and price levels. Illicit cigarettes account for a greater share of consumption in countries with relatively low taxes and prices and a smaller share of consumption in markets with relatively high cigarette taxes and prices.

No credible evidence supports the contention that the implementation of other tobacco control measures (e.g., smoke-free policies, media campaigns, cessation support, state and community programs) causes an increase in illicit tobacco trade (NRC and IOM, 2015). Instead, non-price factors, such as strength of governance, extent of corruption, and the availability of informal distribution networks appear to be more important determinants of the size of the illicit tobacco market; **Figure 2** shows the clear association between the illicit cigarette market share and Transparency International’s “corruption perceptions index.”

Estimates of the extent of tax avoidance and evasion in the United States vary substantially depending on the source and the approach used. In 2013, Euromonitor International estimated that illicit

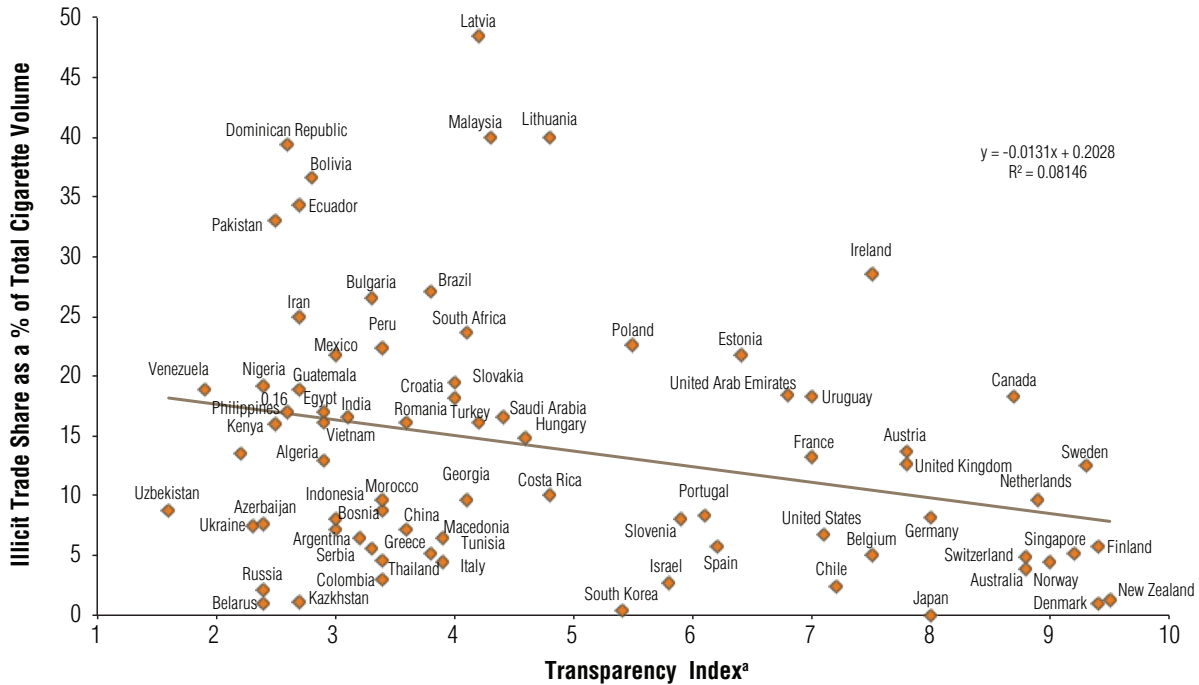
**Figure 1. Illicit Cigarette Market Share and Cigarette Prices, by Country**



Sources: Created from data in Euromonitor International, 2015 (illicit trade percentage), and WHO, 2010 (price).



Figure 2. Illicit Cigarette Market Share and Corruption, by Country

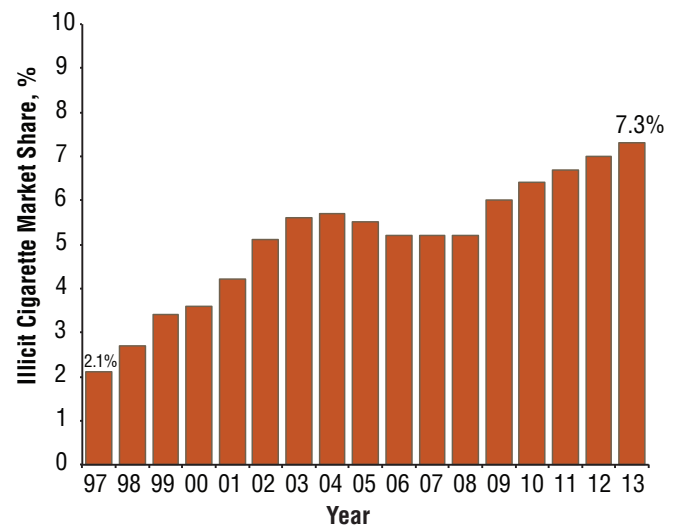


<sup>a</sup> The Transparency Index indicates a country's level of corruption, with lower numbers equaling more corruption.

Source: Created from data in Euromonitor International, 2015 (illicit trade volume), and Transparency International, 2011.

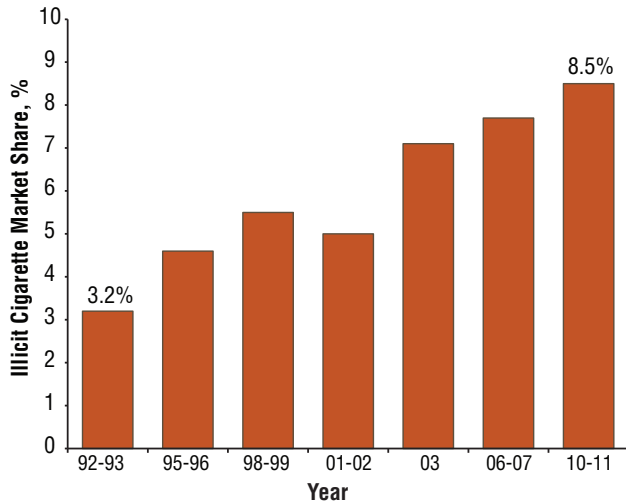
cigarettes accounted for 7.3% of US consumption and that the share had been rising over time, from as low as 2.1% in 1997 (Figure 3) (Euromonitor International, 2015). Likewise, in its recent report on the US illicit tobacco market, the National Research Council (NRC and IOM) estimated that the tax avoidance and evasion accounted for 8.5% of cigarette consumption in 2010-2011 using data from the Tobacco Use Supplement to the Current Population Survey [TUS-CPS] (NRC and IOM, 2015). NRC similarly concluded that the extent of tax avoidance and evasion had been rising slowly over time (Figure 4). These estimates are consistent with those from surveys of US cigarette smokers that collect information on tax avoidance and evasion behaviors (e.g., purchasing cigarettes in lower-tax jurisdictions or purchasing smuggled or other illegal cigarettes for personal consumption). For example, the International Tobacco Control Policy Evaluation Project's US (ITC-US) survey that found that 7.3% of smokers reported purchasing behaviors that likely reflected tax avoidance or evasion in 2010-2011, up somewhat from earlier survey waves (Figure 5) (Guindon et al., 2014).

Figure 3. Illicit Cigarette Market Share Trends, United States (Euromonitor International)



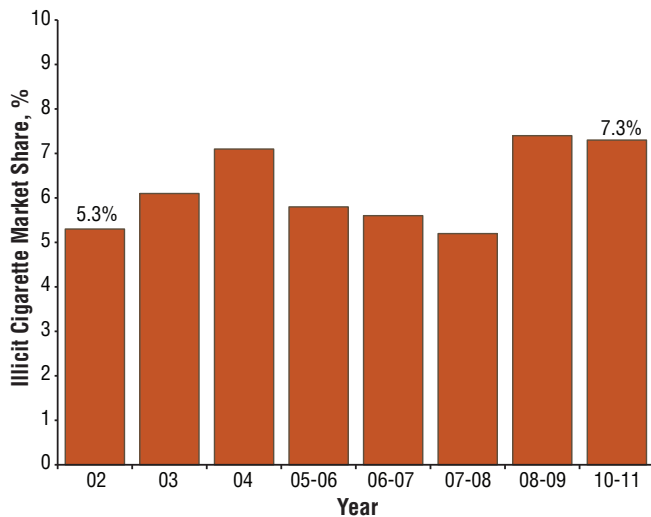
Source: Created from data in Euromonitor International, 2015.

**Figure 4. Illicit Cigarette Market Share Trends, United States (National Research Council and Institute of Medicine)**



Source: Adapted from National Research Council and Institute of Medicine, 2015.

**Figure 5. Illicit Cigarette Market Share Trends, United States (International Trade Commission)**



Source: Guindon et al., 2014.

#### Illicit Trade Estimate

An estimated 7%-21% of cigarettes consumed in the United States are purchased illicitly; this costs state governments billions in lost tax revenues.

The National Research Council estimated that tax avoidance and evasion account for 1.24 to 2.91 billion packs of cigarettes annually (NRC and IOM, 2015).

Recent estimates based on pack inspection approaches, however, seem to suggest that the extent of cigarette tax avoidance and evasion in the

United States could be much larger, accounting for as much as one in five packs consumed. Fix and colleagues (2014) estimated that 20% of cigarette packs purchased in 2009 and 21% of packs purchased in 2010 did not generate state taxes in respondents' states of residence, based on their collection of packs from ITC survey respondents. Similarly, Barker and colleagues (in progress) estimated that 21% of cigarette packs reflected tax avoidance or evasion, based on over 2,100 discarded packs collected in the *Bridging the Gap* project's 2012 nationwide littered-pack collection.

The reality is likely somewhere in between, given the likelihood that the low-end estimates understate the extent of the problem, while the high-end estimates are likely to overstate it.

Either way, the problem is significant. NRC estimates that tax avoidance and evasion account for 1.24 to 2.91 billion packs of cigarettes annually in the United States (NRC and IOM, 2015), which lessens the full impact of increased tobacco prices as a tobacco prevention intervention.

### Determinants of Tax Avoidance and Evasion in the United States

At the international level, smuggling, including counterfeiting, is the main form of illicit trade, and weak governance (e.g., corruption, poor tax administration, weak border controls) is the primary driver of this problem. In contrast, in the United States, cross-border activity is the main form of illicit trade (both individual avoidance and larger-scale evasion) and the differences in taxes across state and local jurisdictions is the main driver of this activity (NRC and IOM, 2015). Significant differences in taxes and prices across proximate jurisdictions have been shown to lead tobacco users in higher-tax jurisdictions to avoid these higher taxes by purchasing tobacco products in lower-tax jurisdictions; these differences also make bootlegging of tobacco products from lower-tax to higher-tax jurisdictions a highly profitable activity (Figure 6). State cigarette taxes vary from a low of 17 cents per pack in Missouri to a high of \$4.35 per pack in New York, with an average excise tax of \$1.60 and retail pack price of \$5.98 (as of June 2015); significant local cigarette taxes add to the variability. In Chicago, for example, the combined federal (\$1.01) state (\$1.98), county (\$3.00) and city (\$1.18) taxes amount to \$7.17 per pack, while combined taxes on cigarettes sold in

nearby Indiana are \$2.06 per pack. Moreover, given the sovereign status of Native American tribes, tobacco products sold on Native American reservations often do not include state or local taxes, potentially creating additional opportunities for tax avoidance and evasion.

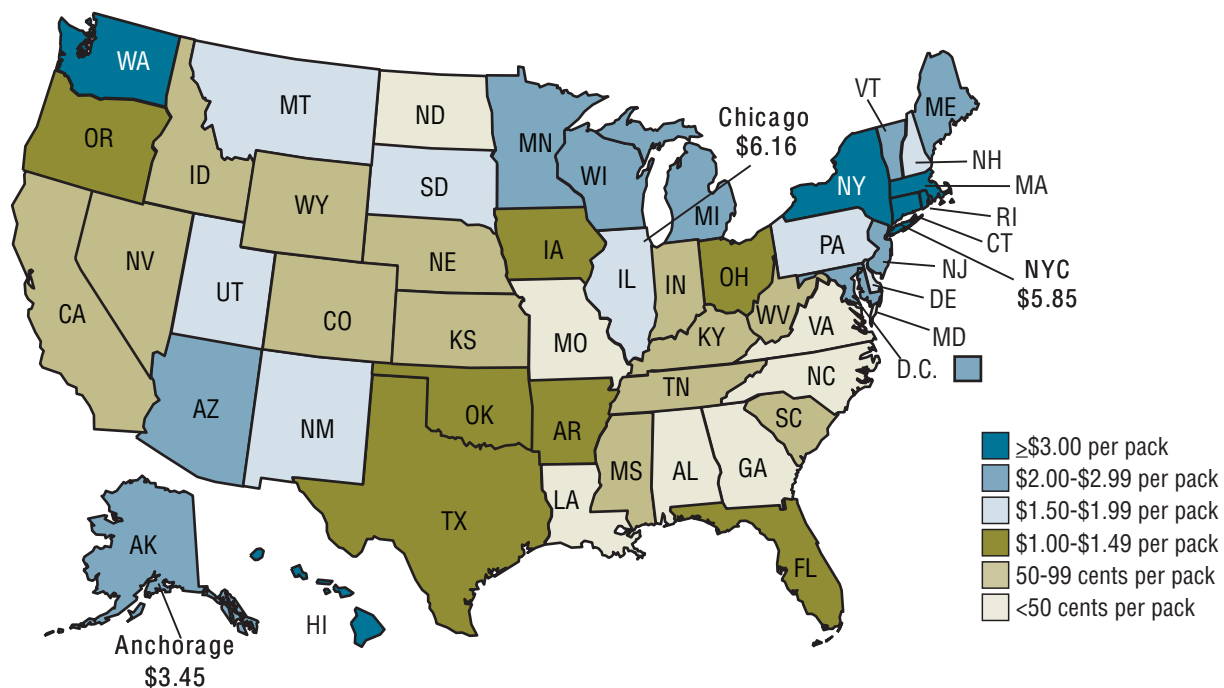
As a result, some US jurisdictions are a significant source of illicit tobacco products, capturing additional revenues at the expense of other jurisdictions that face lost revenue. Some of those latter jurisdictions also fail to realize health care and economic benefits associated with reduced tobacco use that can be expected to accrue from higher taxes. These benefits are clearly illustrated by the NRC's state-by-state estimates of the differences between adjusted self-reported cigarette consumption and tax-paid sales in 2010-2011 (Figure 7). Some states are net "exporters" of cigarettes, selling many more tax-paid cigarettes than are consumed by state residents, while others are net "importers" of cigarettes, consuming many more cigarettes than are sold with the relevant state and local taxes. In general, exporting states are low-tax states, either absolutely (e.g., Virginia, South Carolina, and North Dakota) or relative to others in their region (e.g., New Hampshire, Delaware, and California), while "importing" states are generally high-tax states (e.g., New York and Rhode Island) or states with taxes that are significantly higher than taxes in neighboring

states (e.g., Ohio and Kansas). Additionally, some (but not all) states with large populations concentrated near Native American reservations without effective controls on tribal sales are among the largest "importing" states (e.g., Arizona, New Mexico, New York, and Washington).

The extent of the problem is even greater in some localities, in part because of significant differences between local taxes and those of nearby areas. For example, one recent littered-pack study for five large Northeastern cities estimated that almost half of cigarettes consumed in New York City, which has relatively high state and local taxes (\$5.85 total), had avoided or evaded state and local taxes (Davis et al., 2014), while another noted higher levels of illicit tobacco in socioeconomically deprived areas of the city (Kurti et al., 2013; Kurti et al., 2015).

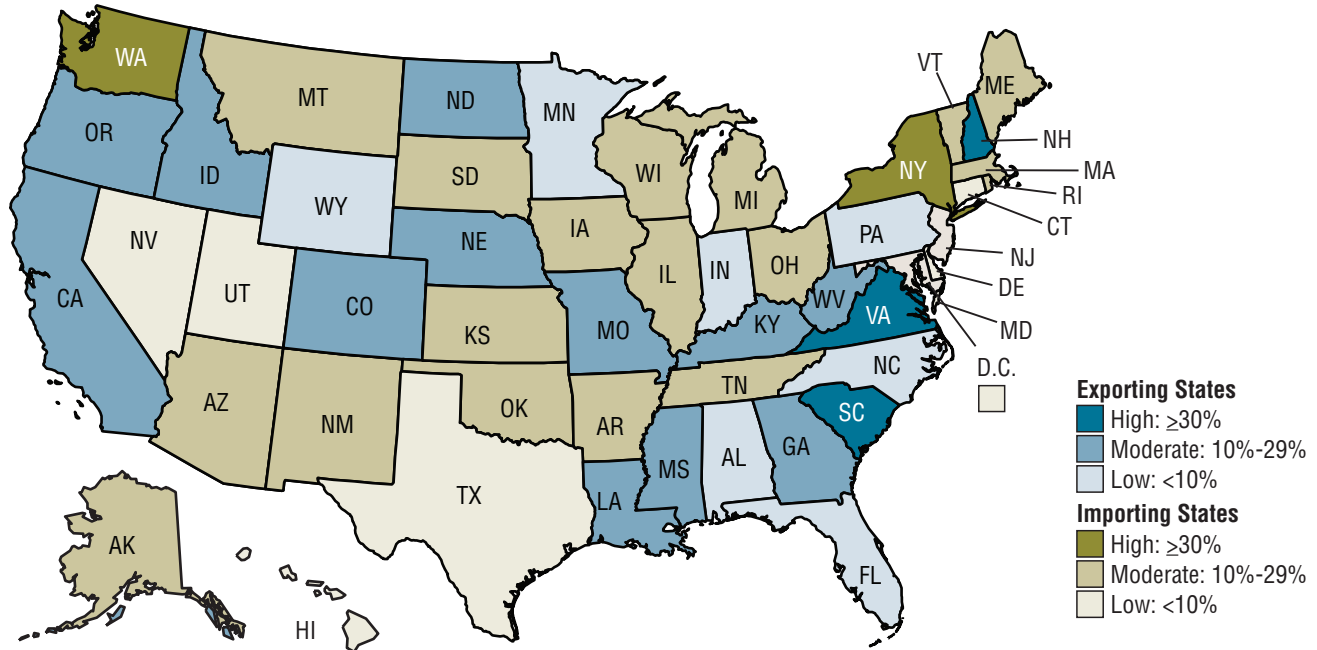
As a result, some states benefit economically from illicit tobacco trade, generating considerably more tax revenue by selling cigarettes to individuals avoiding their home state or local taxes or to more organized efforts where they are resold elsewhere to evade state and local taxes in the jurisdiction in which they are consumed, while others lose revenues from consumption of cigarettes that were legally sold and taxed in other jurisdictions. In 2010-2011,

Figure 6. State Cigarette Excise Tax Rates, United States, April 2015



Source: Campaign for Tobacco-free Kids, 2015.

Figure 7. State Cigarette Importing/Exporting Shares, 2010-2011



Note: "Importing states" are those where some consumers avoid or evade taxes by obtaining their tobacco products from states or federal tribal lands where taxes are lower. "Exporting states" are those where some tobacco products intended for consumption within that state are purchased by consumers from outside of the state to avoid or evade their "home" taxes.

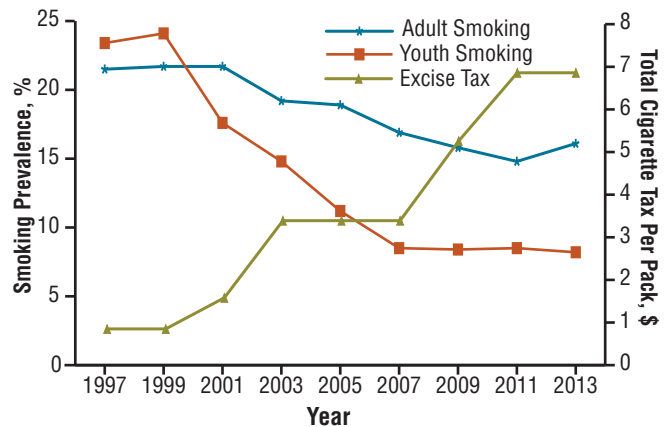
Source: Created from data in National Research Council and Institute of Medicine, 2015.

NRC estimates that New York and Washington were the biggest "losers" from cigarette tax avoidance and evasion, with estimated revenue losses of nearly \$1.4 billion and over \$370 million, respectively, while California and South Carolina gained almost \$150 million and \$110 million in revenues, respectively. Overall, despite gains in some states, the NRC estimates that gross state and local tax revenue from cigarette tax avoidance and evasion amount to a loss of \$3 billion to \$7 billion annually. The total gross tobacco tax revenue losses are almost certainly higher, given similarly sizable differences in other tobacco product taxes and prices across states and localities and the likely tax avoidance and evasion caused by these differentials.

Despite the illicit trade that results from significant tax and price differentials in the United States, states and localities can still generate reductions in tobacco use and increase tobacco tax revenues when they increase tobacco taxes. The sizable state and city cigarette tax increases in New York City, for example, contributed to sharp reductions in youth and adult smoking prevalence over the past 2 decades (Figure 8) while generating

greater state and local tax revenues following each tax increase (Coady et al, 2012). Every state cigarette tax increase of 25 cents or more per pack has generated a significant increase in cigarette tax revenues, despite any increase in tax avoidance and evasion, as shown in Table 1 (Chaloupka and Huang, 2015).

Figure 8. Cigarette Taxes and Youth/Adult Smoking Prevalence Rates, New York City, 1997-2011



Source: Schroth, 2013. Reprinted with permission.

**Table 1. State Experiences With Large Cigarette Tax Increases, 2003-2013**

State	Effective Date	Tax Increase, \$ per pack	New State Tax Rate, \$ per pack	State Pack Sales Change, %	Nationwide Pack Sales Change, %	Revenue Increase, %	Gross New Revenues, \$ (millions)
Alaska	1/1/05	0.60	1.60	-23.2	-4.2	22.8	9.3
Arkansas	3/1/09	0.56	1.15	-27.8	-10.2	33.5	46.5
Arizona	12/8/06	0.82	2.00	-32.5	-4.4	13.6	44.5
Colorado	1/1/05	0.64	0.84	-24.3	-4.2	220.2	131.0
Delaware	7/31/07	0.60	1.15	-35.1	-4.9	35.1	31.8
Washington, DC	10/1/08	1.00	2.00	-25.9	-7.0	57.3	13.2
Florida	7/1/09	1.00	1.339	-27.4	-8.4	193.2	828.8
Hawaii	7/1/09	0.60	2.60	-11.3	-8.4	14.5	15.1
Illinois	6/24/12	1.00	1.98	-31.2	-2.3	39.0	229.2
Iowa	3/15/07	1.00	1.36	-30.6	-4.7	140.2	128.0
Maine	9/19/05	1.00	2.00	-12.3	-1.8	76.5	71.5
Maryland	1/1/08	1.00	2.00	-27.1	-4.2	45.8	126.9
Massachusetts	7/1/08	1.00	2.51	-20.3	-5.3	32.2	137.2
Massachusetts	7/1/13	1.00	3.51	-15.0	-4.7	15.3	81.9
Michigan	7/1/04	0.75	2.00	-15.2	-1.7	28.1	238.9
Minnesota	8/1/05	0.75	1.23	-16.1	-1.8	160.7	258.4
Minnesota	7/1/13	1.60	2.83	-24.0	-4.7	56.0	204.1
Mississippi	5/15/09	0.50	0.68	-22.8	-9.5	188.3	88.9
Montana	5/1/03	0.52	0.70	-7.3	-2.9	259.8	30.5
Montana	1/1/05	1.00	1.70	-42.0	-4.2	36.5	18.8
New Jersey	7/1/03	0.55	2.05	-9.0	-2.3	26.6	157.4
New Mexico	7/1/03	0.70	0.91	-32.3	-2.3	191.8	39.2
New Mexico	7/1/10	0.75	1.66	-7.8	-2.6	67.5	37.5
New York	6/3/08	1.25	2.75	-15.2	-5.8	40.3	377.4
New York	7/1/10	1.60	4.35	-24.8	-2.6	18.8	244.6
Ohio	7/1/05	0.70	1.25	-20.6	-1.6	78.9	437.6
Oklahoma	1/1/05	0.80	1.03	-34.7	-4.2	98.2	81.6
Rhode Island	7/1/04	0.75	2.46	-18.7	-1.7	16.9	18.7
South Dakota	1/1/07	1.00	1.53	-25.8	-4.9	115.4	31.8
Rhode Island	4/10/09	1.00	3.46	-14.7	-11.1	15.1	17.8
South Carolina	7/1/10	0.50	0.57	+7.8 <sup>a</sup>	-2.6	434.2	116.8
Texas	1/1/07	1.00	1.41	-21.0	-4.9	191.7	1,003.7
Utah	7/1/10	1.005	1.70	-24.5	-2.6	85.0	47.0
Vermont	7/1/06	0.60	1.79	-15.2	-3.0	27.9	13.2
Washington	7/1/05	0.60	2.025	-8.4	-1.6	29.1	95.5
Washington	5/1/10	1.00	3.025	-20.5	-3.9	17.0	62.0
Wisconsin	1/1/08	1.00	1.77	-15.0	-4.2	93.9	286.0

<sup>a</sup> The increase in sales in South Carolina is largely due to a surge in sales in July 2010, before implementation of the state's new tax rate in August 2010.

Source: Chaloupka and Huang, 2015.

## Tax Harmonization

Given that illicit tobacco trade in the United States largely is largely driven by inter-jurisdictional differences in taxes and prices, tax harmonization holds significant potential to dramatically reduce the scope of illicit trade. Tax harmonization is when jurisdictions agree to cooperate and work to equalize tax rates across their respective jurisdictions. Harmonization can be based on a percentage of excise tax in the price or a flat minimum value. It can use either an excise tax ceiling (i.e., requiring higher-tax jurisdictions to reduce taxes in order to align with lower-tax jurisdictions) or an excise tax floor (i.e., requiring minimum levels of taxation while also allowing jurisdictions to levy higher taxes).

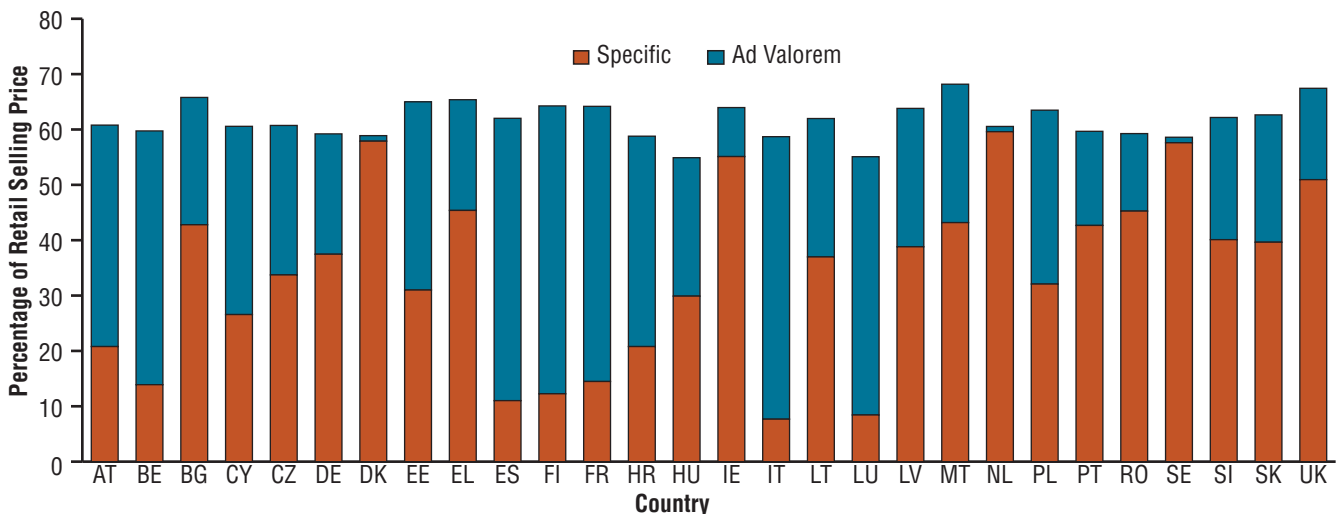
In practice, tax harmonization is complicated because it requires coordination among multiple governments across multiple jurisdictions with potentially competing interests. Difficulties in gaining support for an excise tax floor that would require a tax increase in lower-tax jurisdictions make harmonization with higher-tax jurisdictions more attractive; however, an excise tax ceiling that would require high-tax states to cut tobacco excise taxes could have adverse public health effects that may outweigh the positive effects of eliminating the illicit market. Tax harmonization agreements that set a high minimum floor, while more difficult to achieve, could reduce tax avoidance and tax evasion, increase revenues for governments, and ultimately decrease the health harms of tobacco by preventing uptake and cutting prevalence. As an intervention, tax harmonization is not included in the set of comprehensive strategies in this report because it is a fundamentally different approach that deals

with the main driver of illicit trade in the United States (price differentials), rather than dealing with actual tax avoidance and evasion activities.

Tobacco taxes vary greatly across jurisdictions in the United States. State and local taxes range from a low of 17 cents per pack in Missouri cities that do not levy local taxes, to \$6.16 in Chicago (Figure 6). While harmonization of state taxes has not been tried in the United States, the federal government has used the threat of withholding various funds to encourage states to harmonize some tobacco and alcohol policies. In 1992, for example, the Synar amendment required states to set the minimum legal purchase age for tobacco products at 18 years or older and to demonstrate minimum levels of retailer compliance or face the loss of a portion of their federal substance abuse prevention and treatment block grant funding (Substance Abuse and Mental Health Services Administration, 2015).

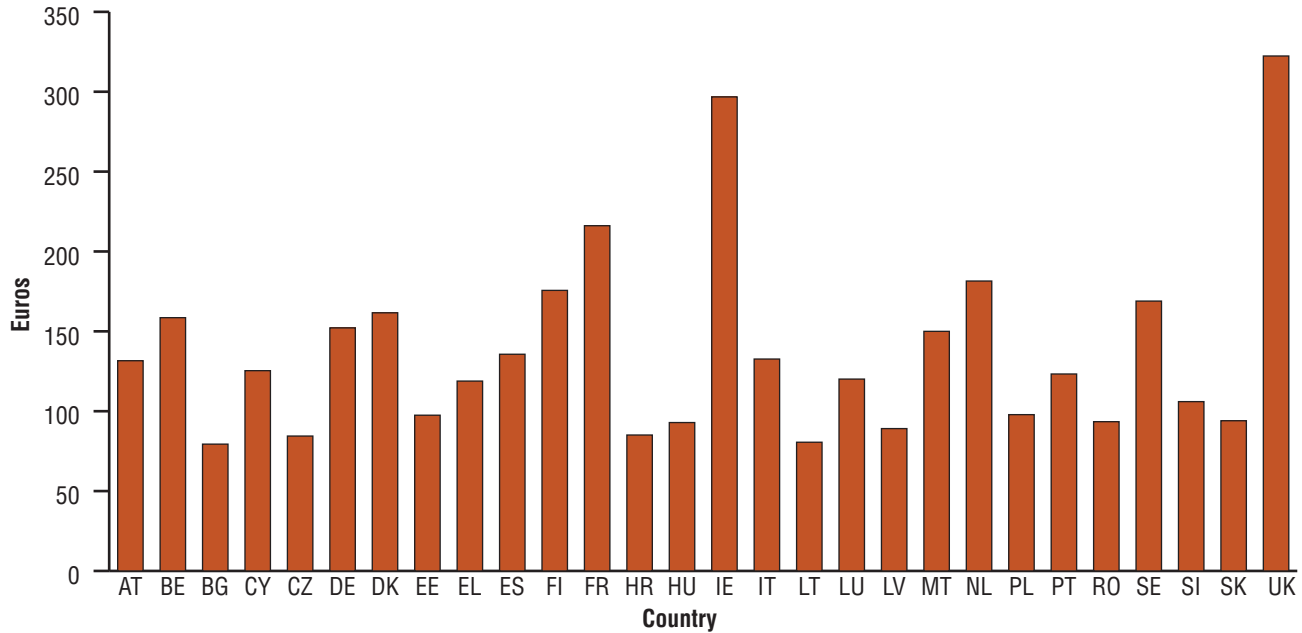
The European Union (EU) has implemented a successful regional tax harmonization scheme that has reduced tax and price differences among its 28 member states. The most recent EU tobacco tax directive was adopted in June 2011 and requires countries to implement cigarette excise taxes that account for at least 60% of the weighted average retail price for cigarettes (see Figure 9). The total excise tax must account for at least €90 per 1,000 cigarettes, or €1.8 per pack of 20 cigarettes. Though several member states are still working towards this goal (Bulgaria, Lithuania, Czech Republic, Latvia and Hungary), most member states have achieved or exceeded requirement (Figure 10).

Figure 9. Cigarette Excise Tax as a Percentage of Retail Selling Price, EU Member States, January 1, 2015



Source: European Commission, 2015. Reprinted with permission.

Figure 10. Total Cigarette Excise Taxes per 1,000 Cigarettes, EU Member States, January 1, 2015



Source: European Commission, 2015. Reprinted with permission.

### Potential Impact of Tax Harmonization

A policy that reduces interstate tax and price differences by requiring minimum state taxes on tobacco products would address both tax avoidance (e.g., by reducing incentives for cross-border shopping) and tax evasion (e.g., by reducing the profitability of bootlegging). A minimum state cigarette tax of \$1.60 per pack,<sup>a</sup> along with equivalent minimum for other tobacco product taxes, could be a feasible starting point, with periodic increases in the minimum tax levels over time to keep pace with inflation.

The impact of a tax harmonization policy would vary across states. Low-tax states (those with a tax below the minimum required under tax harmonization) would see reductions in tax-paid sales of tobacco products, as the higher prices that result from the minimum taxes reduce cross-border purchases from tobacco users in nearby high-tax states and bootlegging of tobacco products from these low-tax states. The higher taxes and prices would also discourage tobacco use in these states, leading to increased cessation among current tobacco users,

reduced uptake of tobacco use among young people, and reduced tobacco consumption among continuing users. The reductions in tobacco use would lead to improvements in public health in these states, reducing the deaths, diseases, and economic costs caused by tobacco use.

Moreover, low-tax states would almost certainly see sizable increases in tobacco tax revenues, despite the reductions in tax-paid sales, given that the increases in taxes would be large relative to the reductions in sales.

High-tax states (those with taxes above the required minimums) would be likely to see an increase in tax-paid sales as the supply of illicit bootlegged tobacco products declines and the incentives for tobacco users to cross-border shop in other states are also reduced. At the same time, these states would likely see reductions in tobacco use from the general increase in tobacco product prices as a result of the drop in supply of illicit products and reduced opportunities for tax avoidance. These effects would likely be greatest among the most price-sensitive populations—youth and people with low incomes. The increase in tax-paid sales in these states would lead to an increase in tobacco tax revenues, while the reductions in tobacco use would lead to reductions in the health and economic consequences of tobacco use.

<sup>a</sup> \$1.60 was chosen by the authors as the current average price per pack, such that roughly 50% of states' taxes would increase to meet this average.

As a result of a tax harmonization policy, federal spending on tobacco-related conditions and diseases through Medicaid, Medicare, and other public health insurance programs would eventually decline, given the reductions in tobacco use that would follow the general rise in tobacco product prices. This reduced federal spending on tobacco-related conditions and diseases could partially counter decreases in federal tobacco tax revenues that might occur, given the net reductions in overall tax-paid sales of tobacco products resulting from the higher taxes in current low-tax states and the reduced incentives for tax avoidance and evasion. Although increased longevity due to fewer people dying prematurely from tobacco use could somewhat attenuate these savings, given the evidence in the recent Congressional Budget Office (CBO) report, whether positive or negative, those health effects on the federal budget would be very small (CBO, 2012).



# MEASURES TO PREVENT AND REDUCE ILLICIT TRADE

In this report, approaches and measures applicable to the US federal government will be discussed, followed by approaches and measures applicable to state, local, and tribal jurisdictions. Case examples from US states or municipalities, or other countries, highlight each measure. The potential impact of implementing these measures is described for each measure where possible. Considerations for federal, state and local actions to curb tax avoidance and evasion are offered as appropriate. The final section of the report provides a brief summary.

## Identifying Relevant Measures

National, state, and local governments have many options for curbing tobacco tax avoidance and evasion. Many of these measures are outlined in the *Protocol to Eliminate Illicit Trade in Tobacco Products*, the first and, to date, only protocol to the World Health Organization’s Framework Convention on Tobacco Control (FCTC) (WHO, 2012) and discussed in WHO’s *Technical Manual on Tobacco Tax Administration* (WHO, 2010). Brief definitions of common approaches are outlined in **Table 2**. This report identifies and describes a number of measures that have potential to reduce and prevent illicit trade in the United States. The overall approach of prioritizing enhanced coordination, enforcement, and penalties is appropriate at both federal and state/local jurisdiction levels. Some measures are only appropriate at the federal level, while others are only appropriate at the state/local jurisdiction level.

Several measures are appropriate at both the federal and state/local jurisdiction levels. These are indicated in the highlight box below and in the text in each section.

Experiences in many countries, states, and other jurisdictions demonstrate that a comprehensive approach to address illicit tobacco markets is most effective. **Table 3** highlights the approaches to addressing illicit trade taken by a selection of countries. As with other tobacco control strategies, the majority of these actions would be most effective as part of a comprehensive approach rather than as individual interventions. For the purposes of this report, a “comprehensive approach” refers to an approach that includes enhanced coordination, enforcement, and penalties at all levels of government, and the set of measures in the highlight box below. Furthermore, enforcement is a theme that runs through most interventions.

**Federal and State Measures and Case Studies Highlighted in this Report**

Level of Government	Measure Highlighted	Case Study
Federal	Comprehensive approach including coordination, enforcement, and penalties	United Kingdom
State/local	Comprehensive approach including coordination, enforcement, and penalties	New York City
Federal	Tax harmonization	European Union
Federal	Track-and-trace system	Turkey
State/local	Three-legged stool: <ul style="list-style-type: none"> <li>• High-tech tax stamps (product markings)</li> <li>• Licensing</li> <li>• Enforcement and Penalties</li> </ul>	California, Massachusetts, and Michigan
Federal	Public education: awareness	United Kingdom, Canada
State/local	Public education: tip lines	Chicago Cook County
State/local	Policies addressing tribal sales	Canada, various US states

**Table 2. Brief Definitions of Common Approaches to Addressing Illicit Tobacco Trade**

Approach	Definition
Licensing	Official authorization for engaging in any activity within the tobacco supply chain, from tobacco growing to product manufacturing to product transportation, retail, and export.
Product markings/stamps	Counterfeit-resistant, affixed images on product packaging that indicate date and location of manufacture and the intended retail market.
Track-and-trace	Systems incorporating both markers and national record-keeping structures to enable tracking of tobacco products throughout the supply chain; tracing the movement of products by transferring the tracking data into a national information-sharing database.
Tax harmonization	Equalizing tax rates across neighboring jurisdictions to lower imbalance in cigarette prices across borders.
Tribal policies	Agreements between states and Native American tribes addressing tribal tobacco sales.
Enforcement	Commitment to detect and prosecute illicit trade activity.
Agencies' coordination	Coordination between agencies within and across borders to support intelligence gathering, joint customs operations, and sharing of best practices.
Penalties	High/escalating fines, license revocation, or other measures that can be aimed at retailers, consumers, and other participants in illicit trade to deter this activity.
Public awareness	Disseminating information about the risks associated with illicit tobacco trade to motivate support for enforcement activities.

Source: Ross et al, 2015.

**Table 3. Common Approaches to Address Illicit Tobacco Trade and Year of Ratification of the WHO FCTC and Signing/Accession<sup>a</sup> of FCTC Protocol to Eliminate Illicit Tobacco Trade, by Nine Countries and the EU**

Approach	Approach Implemented?									
	EU	Canada	Spain	Italy	UK	Brazil	Hungary	Romania	Turkey	Malaysia
Licensing	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Markers		yes	yes	yes	yes	yes	yes	yes	yes	yes
National record keeping	yes	yes	yes	yes	yes	yes	yes	yes	yes	
Track-and-trace		yes				yes	yes		yes	
Enforcement	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Export tax		yes				yes				
Tax harmonization	yes		yes	yes	yes		yes	yes		
Agreements with industry	yes	yes	yes	yes	yes		yes	yes	yes	
Public awareness	yes	yes			yes					yes
Agencies' coordination	yes	yes	yes	yes	yes	yes	yes	yes	yes	
WHO FCTC: year ratified	2005	2004	2005	2008	2004	2005	2004	2006	2004	2005
WHO FCTC Protocol to Eliminate Illicit Trade in Tobacco Products: year signed/year of accession	2013		2013/ 2014		2013				2013	

Abbreviations: WHO, World Health Organization; FCTC, Framework Convention for Tobacco Control; EU, European Union; UK, United Kingdom.

<sup>a</sup> Accession is an act by which a state signifies its agreement to be legally bound by the terms of a particular treaty.

Source: Ross et al, 2015.

## Overarching Elements of Comprehensive Approach to Eliminate Illicit Trade

### Comprehensive Federal Approach

Prioritizing action on illicit trade and committing to enhanced coordination, enforcement, and penalties are the foundational elements of a comprehensive overall approach to preventing and reducing illicit trade. This approach has been successfully implemented in a number of countries. In the United States, many agencies at different levels of government are involved in enforcing tobacco laws, taxes, and regulations, creating immense coordination challenges for effective intervention in the illicit tobacco trade. Key federal agencies (NRC and IOM, 2015) include

- The Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF).
- US Immigration and Customs Enforcement.
- Customs and Border Protection.
- The Alcohol and Tobacco Tax and Trade Bureau.
- The Food and Drug Administration (FDA).

In many states, multiple state and local agencies are also engaged in tobacco tax administration and enforcement. For example, in Virginia, key agencies include the Virginia Department of Taxation, the Northern Virginia Cigarette Tax Board, the state police's Criminal Interdiction and Counterterrorism Unit, and the Attorney General's Tobacco Enforcement Unit (NRC and IOM, 2015). Local, state, and federal agencies involved in tobacco tax administration and enforcement have overlapping roles and different levels of resources for enforcement. Different levels of government also have different enforcement strengths: local agencies have the most access to information about retailers, state agencies may have most familiarity with transport routes and methods, and the federal government has the greatest resources and range of enforcement powers (NRC and IOM, 2015).

Current federal efforts targeting illicit tobacco trade may benefit from a more cohesive approach. Enforcement efforts in particular could benefit from both enhanced coordination and resources commensurate with the scale of the challenge. Historically, ATF has led enforcement efforts; however, resources dedicated to this aspect of their mandate have both diminished over time while illicit trade has increased (NRC and IOM, 2015). International and US jurisdictional examples illustrate coordination of activities to address illicit

tobacco trade as a key priority for solving the problem. The United States could consider taking this approach, which would include designating one agency to lead federal efforts and to coordinate and collaborate with other federal, state, and local authorities, and with relevant international agencies. Enforcement efforts are complicated by the dynamic and adaptive nature of illicit tobacco markets, which further reinforces the need to coordinate across various agencies, participants, and levels of government (NRC and IOM, 2015). Although enforcement efforts may reduce the size of the illicit tobacco market, the market may adapt and reemerge in the absence of sustained interventions that are comprehensive and coordinated. Enforcement activities that are flexible and responsive, and that focus on the aspects of the trade that present the greatest problems, are the most effective. Flexible enforcement can take advantage of the instability of illegal activities and intervene before new markets are established and illegal business has a chance to reorganize (NRC and IOM, 2015).

Enforcement is a necessary component of many individual illicit trade countermeasures, such as licensing, tax stamps and other markings, and tracking-and-tracing systems (Sweeting et al, 2009). Effective enforcement requires adequate resources in manpower, equipment, and level of training; it also requires that law enforcement agencies have the motivation, opportunity, and legal authority to enforce illicit trade laws. Equipping officials with appropriate technology to monitor and assess the legal status of tobacco products, and the authority to directly penalize offenders, is fundamental to enforcement (Sweeting et al., 2009). Enhanced border enforcement through x-ray scanners, spot-checks, and strict penalties have high potential to disrupt illicit tobacco trade. Swift and severe penalties for those caught engaging in illicit tobacco trade are an essential element of a comprehensive approach to enforcement (WHO, 2010). Furthermore, criminal prosecution of those found to be involved in illicit trade is a critical part of deterring and disrupting this activity following enforcement action (NRC and IOM, 2015).

#### Licensing and Enhancing Inspections

Licensing and enhanced inspection are considered effective enforcement and deterrence measures directed at retailers. Those with the greatest impact include high initial penalties and escalating penalties, up to license revocation for repeat offenders.

Penalties for illicit trade are driven by a number of factors, including magnitude of illicit activity and individual charges levied by federal, state, or local authorities. Charges typically include some combination of receiving or trafficking in counterfeit goods, money laundering, conspiracy, false reporting, aiding and abetting criminal activity, and racketeering. Penalties range from loss of licenses and permits, to fines and seizure of assets, to jail time, and can vary significantly among jurisdictions (Interpol, 2014).

#### Comprehensive Approach Case Study: United Kingdom

At the turn of the century, the UK was experiencing among the highest levels of illicit tobacco trade in Western Europe, with an estimated 22% of cigarette consumption and over 61% of roll-your-own tobacco (RYO) consumption avoiding or evading taxes. Illicit trade cost the government about £3.4 billion in lost tax revenues (HM Revenue and Customs and Border Force [HMRC], 2015). Most of this was accounted for by tax evasion through tobacco smuggling; a relatively minor share was from tax avoidance through individual cross-border shopping.

The UK's success in reducing illicit tobacco trade, particularly illicit cigarette trade, is the result of a comprehensive and adaptive strategy that focuses on illicit tobacco trade as one component of a broader tobacco control strategy aimed at reducing overall tobacco use. The first step in this illicit trade reduction effort was to formally prioritize national action on illicit tobacco trade, highlighted by the adoption of the "Tackling Tobacco Smuggling" strategy implemented in 2000. One key component of this strategy was the coordination of enforcement activities. HMRC took the lead role and activities were supported by other enforcement agencies, the Department of Health, the public health community, and tobacco manufacturers. Other key elements of the UK strategy included

- A focus on large-scale smuggling; enhanced penalties for those engaged in illicit tobacco trade, such as seizure of vehicles/vessels used in illicit trade, confiscation of assets, collection of lost taxes, and jail sentences.
- Significantly increased resources for enforcement, including the initial addition of 1,000 new customs officers/investigators and acquisition of x-ray scanners and other equipment to improve detection of illicit products; implementation of public awareness programs.

#### UK Success

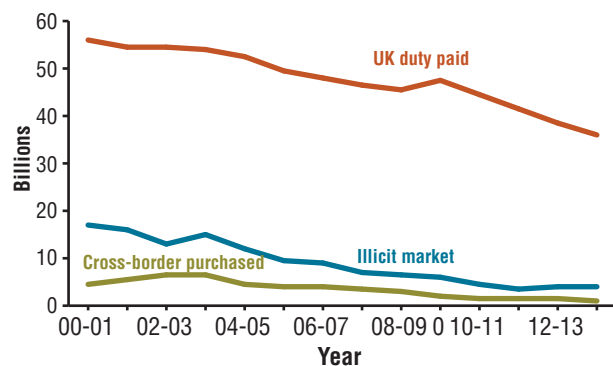
By 2013-2014, the illicit cigarette market share had been more than halved, to 10%, with an even larger reduction in the absolute volume of illicit cigarettes.

- Implementation of pack markings with "UKDUTYPAID" printed prominently on licit cigarette packs and pouches of RYO.
- The negotiation of memoranda of understandings (MOU) with major tobacco manufacturers to enlist their help in addressing illicit trade.

The MOUs were of particular importance given the evidence that cigarettes produced in and exported from the UK, particularly by Imperial Tobacco, were being smuggled back into the country (NRC and IOM, 2015).

These efforts were highly successful in reducing illicit tobacco trade in the UK. By 2013-14, the illicit cigarette market share had been more than halved, to 10%, with an even larger reduction in the absolute volume of illicit cigarettes, given significant reductions in overall cigarette consumption (Figure 11). There was also a large reduction in the illicit market share of RYO, although this still remains a problem, with the illicit market share estimated at 39% in 2013-14 (HMRC, 2015). Following its success in reducing illicit tobacco trade, the UK resumed its policy of raising tobacco taxes above the rate of inflation in recent years, which has increased prices, reduced tobacco use and its consequences, and at the same time generated significant new revenues (HMRC, 2015). However, the

Figure 11. Estimated Number of Cigarettes Consumed, by Duty-Paid, Illicit, and Cross-Border Purchased Status, 2000-2001 to 2013-2014



Source: HM Revenue and Customs and Border Force, 2014.

illicit market adapted to the new regulatory climate, with counterfeit cigarettes becoming more prevalent and illicit products appearing in postal shipments. This led to a “refresh” of the anti-smuggling strategy including continued strong enforcement actions and sanctions, the addition of covert security markings on cigarette packs and RYO pouches intended for sale in the UK market and additional public education efforts. Over time, the UK’s strategy has continued to evolve and adapt to changes in the illicit market, leading to continued declines in the market share for illicit tobacco products (NRC and IOM, 2015). In addition to coordination of domestic activities, the UK has also played a leading role in furthering international cooperation within the EU and through other regional and global initiatives (HRMC, 2015).

### Comprehensive State/Local Approach

In addition to action at the federal level, prioritizing efforts to curb illicit tobacco trade through the centralization, coordination, strengthening of enforcement actions, and enhancement of penalties is an effective state or local strategy. These efforts can be most successful when coordination extends across jurisdictions. For example, collaboration with counterparts in jurisdictions that are the sources for illicit products and with relevant federal authorities can strengthen an individual state’s comprehensive approach. While this approach would require sufficient funding to be effective, costs could be offset by increased revenues that result from increased tax-paid sales in states and localities where illicit tobacco markets are sizable.

#### Comprehensive Approach Case Study: New York City

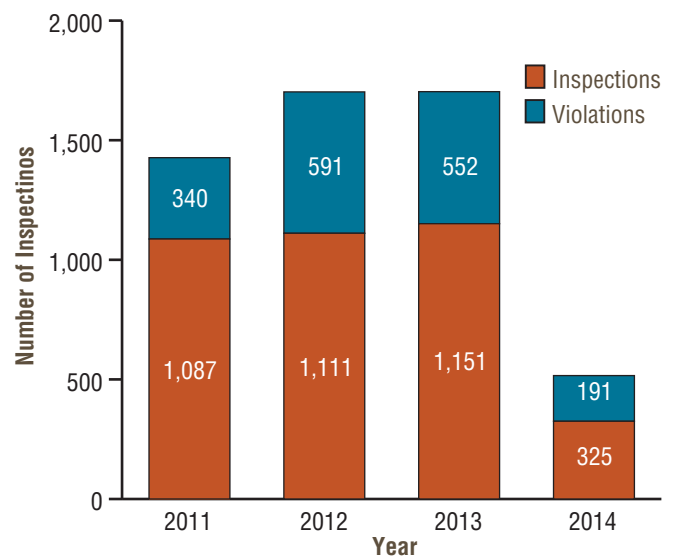
New York City’s combined state and local taxes are \$5.85 per pack, the second highest in the country after Chicago. The city’s high taxes create significant incentives for tax avoidance and evasion, with one recent littered-pack study finding that less than 40% of collected packs had the proper local tax stamp, while significant numbers had nonlocal stamps (33.4%, with nearly half of these bearing stamps from Virginia), no stamp (15.7%), or foreign or unknown stamps (11.6%) (Davis et al., 2014; Kurti et al., 2015).

The high rate of cigarette tax avoidance and evasion, together with the city’s public health objective of reducing tobacco use and its consequences, have made reducing the illicit tobacco trade a renewed

enforcement priority in New York City in recent years. The New York City Department of Finance conducted approximately 5,000 targeted retail inspections between 2008 and 2012. In 2012, 55% of inspected stores had contraband cigarettes (Schroth, 2013) (Figure 12).

In August 2011, the New York City Department of Finance, Office of the Sherriff created the Tobacco Task Force with 14 permanent staff and an intelligence unit comprising two investigators, one intelligence analyst, and one financial auditor, all charged with conducting inspections of licensed retailers (New York City Department of Finance [NYCDOF], 2013). From August 2011 through December 2014, the Task Force conducted 3,674 inspections and found that 45.5% of inspected retailers possessed contraband cigarettes (NYCDOF, 2015a). Almost 25,000 cartons of cigarettes were confiscated, averting nearly \$1.5 million in state and local excise and sales tax losses (NYCDOF, 2015b).

Figure 12. New York City Inspections and Violations, 2011-2014



Source: New York City Department of Finance, 2012a.

More recently, on November 19, 2013, the city passed the “Sensible Tobacco Enforcement” law (Local Law 97 of 2013), implemented in steps and fully operational by August 2014. The law targeted retailers possessing illicit tobacco products and those selling to underage youth, and required retailers to post signs encouraging customers to report violations. At the same time, it increased penalties for violations, reduced the amount of cigarettes required to meet the

city's definition of retailing to more than 400 cigarettes (to deter sales by unlicensed vendors), established a \$10.50 minimum price per pack for cigarettes and little cigars (to make it easier to identify products likely to be illicit), and required that cigars and cigarillos selling for less than \$3.00 each (including all applicable taxes) be sold in packages of at least four and little cigars be sold in packs of 20. Although it is too early to assess the impact of the law, it seems plausible that New York City's efforts will be effective, given the success of other multi-component strategies such as those in the UK that prioritize efforts to curb illicit tobacco trade (NRC and IOM, 2015). However, the continued availability of tobacco products from other states with lower taxes could attenuate the impact of comprehensive efforts in New York City and elsewhere in the United States.

## Potential Impact of Comprehensive Approaches to Eliminate Illicit Trade

### Quantitative Estimates of the Impact of a Federal Comprehensive Approach

As explored by Joossens and colleagues (2009), decreased availability of low-price, illicit products resulting from a comprehensive strategy to reduce tobacco tax avoidance and evasion will, in effect, raise overall prices on tobacco products and ultimately lessen tobacco use and its consequences. However, estimating the potential effect of a comprehensive strategy on market prices is challenging, given the limited information available on prices of illicit tobacco products. That said, comparisons of prices from various sources produce a range for the potential increase in market prices resulting from a comprehensive strategy. Comparing data on self-reported cigarette prices from the 2010-2011 TUS-CPS and the prices reported in the Tax Burden on Tobacco (TBOT), collected from retailers, produces such a range.

The TUS-CPS data report the prices smokers actually pay for cigarettes, and thus reflect a combination of fully tax-paid purchases, individual tax avoidance activities, and purchases of bootlegged cigarettes, as well as the use of any price-reducing promotions. The weighted average price per pack from the 2010-2011 wave of the TUS-CPS was \$4.92. As expected, this is well below the average price reported in the TBOT, which was \$5.55 in November 2010.

The TBOT price likely overstates the average price of fully tax-paid sales, given that it reflects retailer-reported list prices for cigarettes and does not account for some price-reducing promotions. According to tobacco industry spending and sales data reported by the Federal Trade Commission (FTC) for 2010, these promotions amount to between 2 and 48 cents per pack, with the low end reflecting coupons only, and the high end reflecting all price-reducing promotions, most of which are accounted for by price discounts directly to retailers (FTC, 2012). Assuming that the average price after accounting for price-reducing promotions reflects the price of fully tax-paid cigarettes, eliminating cigarettes that avoid or evade taxes would raise the average market price by 3.0% to 12.3% (2010-2011 CTS-CPS).

An alternative approach that uses self-reported prices from the ITC-US survey for purchases that are likely to reflect tax avoidance and evasion and those that are likely to be fully tax-paid (Hyland et al., 2006). Using the NRC's estimated range for the market share of illicit cigarettes (NRC and IOM, 2015) produces a similar range, with the impact of eliminating illicit cigarettes estimated to raise price by 4.0% to 10.4%.

Given estimates for the impact of price increases on adult and youth smoking prevalence and overall consumption, current smoking rates, population estimates, cigarette sales, and the probability of premature death for regular smokers, the potential effect of a comprehensive strategy on smoking, deaths, and federal cigarette tax revenues can be estimated.<sup>b</sup> The 3.0% to 12.3% price increase could lead to an estimated 0.6% to 2.5% reduction in adult smoking prevalence, or a drop of 250,000 to 1 million adult smokers. Assuming youth (aged 12-17) take up smoking at similar rates as young adults (aged 18-25), this price increase is estimated to deter 200,000 to 800,000 current youths from initiating smoking. As a result, 120,000 to 500,000 smoking-attributable deaths could be averted by a comprehensive strategy that eliminated tobacco tax avoidance and evasion. At the same time, overall consumption could drop by 1.2% to 4.9%, reducing federal cigarette tax revenues by \$150 million to \$600 million in the first year.

<sup>b</sup> These University of Illinois at Chicago estimates were based on TUS-CPS data.

As these rough estimates<sup>c</sup> suggest, implementation of a comprehensive strategy that is effective in eliminating tobacco tax avoidance and evasion is likely to reduce tobacco use, which can produce significant public health benefits while having a modest effect on federal tax revenues. These estimates are based on fully eliminating illicit tobacco trade. Estimates based on reducing, but not fully eliminating illicit trade would be smaller, but still significant.

### Qualitative Estimates of the Impact of a State Comprehensive Approach

A comprehensive strategy to curb tax evasion includes

- Prioritization and coordination of enforcement efforts.
- Enhanced penalties for those engaged in illicit tobacco trade.
- Implementation of licensing and product markings with enforcement (three-legged stool).
- Public education efforts.
- Tribal policies where applicable could vary considerably across states.

This section estimates qualitative impacts because the available data do not permit further drill-down.

States where illicit tobacco products are available would be the primary beneficiaries of a comprehensive strategy targeting tobacco tax avoidance and evasion. Reducing illicit tobacco products in these states would cause some tobacco users currently buying in the illicit market to purchase in the licit market, raising tax-paid sales and increasing tobacco tax revenues. Others would be deterred from using tobacco products as a result of the higher prices, leading to reductions in prevalence and the health and economic consequences of tobacco use in these states.

Low-tax states that are the sources of bootlegged cigarettes would see reductions in tax-paid sales, and associated tobacco tax revenues, as a result of a comprehensive strategy to curb tax evasion. Given that the illicit tobacco market in these states is limited at best, these states would see little change in tobacco

use and, as result, would be less likely to experience the public health and economic benefits from reductions in tobacco use.

Multiple options at the federal, state, and local levels have been found to be effective in reducing tobacco tax avoidance and evasion; however, a comprehensive national strategy will have a greater impact than a single intervention. In many cases, the success of one intervention depends on the implementation of others (e.g., state licensing of all involved in tobacco distribution, stamping tobacco products, and increased enforcement of these measures are necessary for effective implementation of a national tracking-and-tracing system). Further efforts that could reduce illicit trade in the United States are increased enforcement actions, a comprehensive strategy for curbing illicit trade that is periodically reviewed and adapted to address changes in the illicit tobacco market, more severe penalties for those engaging in illicit tobacco distribution, and ongoing evaluation.

### Reducing Illicit Trade in the United States: Potential National Actions

- Adopt a comprehensive national approach, which incorporates federal and as state/local options to prevent and reduce illicit trade, in tobacco control efforts.
- Enhance national, state, and local illicit tobacco-related surveillance and evaluation to provide the data needed for understanding and monitoring illicit tobacco markets in the United States and for distinguishing among the different activities that contribute to these markets (e.g., tax avoidance vs. tax evasion), which are essential for developing appropriate interventions.

<sup>c</sup> The University of Illinois at Chicago based these estimates on Tobacco use Supplement to the Current Population Survey (TUS-CPS) data.





## Federal Track-and-Trace System

*Tracking* is a crime prevention tool that involves systematic real-time monitoring of the movement of products through the supply chain (WHO, 2012). It often involves the installation of an advanced anti-counterfeiting system at the start of production, systematic control throughout the supply chain, and audit measures at the point of sale. *Tracing* occurs during or after enforcement action (e.g., seizure or investigation audit) and involves reconstructing the flow of merchandise to identify the point of diversion into illicit channels. It increases the probability of identifying those involved in illegal activities, which can be used to aid further enforcement and prosecution action to prevent recurrent illicit trade. High-tech tax stamps and other pack markings are a key component of a tobacco product tracking-and-tracing system that facilitates investigations into tobacco smuggling and identifies the points at which tobacco products are diverted into illicit markets.

An effective track-and-trace system needs to perform several functions: verify the quantity produced or imported, verify correct tax payments, track products through the supply chain, trace products back to their sources, and ensure product authenticity (WHO, 2012). The installation of automatic production counters at each production line permits the detection of anomalies and ensures that the manufacturer pays all relevant taxes. Product markings applied by the manufacturer or at exporter/importer sites contain data that allow for tracking and tracing and help ensure products are authentic.

The WHO FCTC's Illicit Trade Protocol specifies the minimum data needed for a tracking-and-tracing system, including information on the date and location of manufacture, the manufacturing facility, the intended market for retail sale, and a product description (WHO, 2012). Other data that can be collected include the machine used to manufacture tobacco products; the production shift or time of manufacture; the first and subsequent customers; and the intended shipment route (Colledge, 2012). Additional system features (Colledge, 2012) can include

- Collection of data on brand names.
- Trademark holders.
- Harmonized tariff schedule numbers
- Customs duties and payment records.
- Taxes paid and payment records.
- Information on whether the goods have been previously reported stolen, destroyed, seized or returned to the manufacturer.
- Information about the date and location of intended destruction.

The vital components of the tracking-and-tracing system are the independence, security, and reliability of the system; these require strict and exclusive control and enforcement by governments (WHO, 2014). Manufacturing companies already incorporate product markings such as UPC codes in their production processes.

Important elements of a tracking-and-tracing system include

- Real-time control on all production lines with real-time secured data transmission to a government authority.
- Tracking-and-tracing code activation on production lines.
- Independent real-time control of aggregation on all production lines with real-time data transmission to a government authority.
- Linking of stock keeping unit (SKU) labels and logistic codes with the tracking-and-tracing code.
- Integration of the tracking-and-tracing system with a computerized system for monitoring movements of excise goods for which no excise duties have yet been paid, allowing physical control of declared goods movement.
- A push-button device capable of immediate and unequivocal authentication of fiscal marks, confirmation of genuine products, fulfilment of excise obligation, verification of tracing information, and uploading information for reporting of audit results (European Parliament's Committee on Budgetary Control, 2014).

For the system to work as intended, all legally manufactured and imported unit packs (including products for export) need to be marked and aggregation needs to be possible (i.e., individual pack

codes that are linked to the unique codes on cartons, master cases, and pallets). Marks placed only on master cases or pallets help with business logistics, but do not offer the security provided by tracking and tracing. The security of track-and-trace systems is enhanced by unique and apparently random serialization, or nonsequential numbering on packs. An individual algorithm may still be copied, but a quick check with the database will identify duplicates or invalid serials (Power, 2015).

Tracking-and-tracing systems are generally nonintrusive and require only minor adjustments to production lines (WHO, 2014). The costs of establishing a national tracking-and-tracing system vary by country. The main factors that affect the direct costs are the size of the market; the scope of domestic manufacturing, imports, and exports; the comprehensiveness and the length of the contract with a vendor; the level of industry concentration; and the implementation strategy. There will also be costs associated with linking a national system to the global tracking-and-tracing system, but these can be reduced if a global information-sharing center develops a uniform software solution shared by multiple countries (WHO, 2014). Several countries that have implemented tracking-and-tracing systems have required the tobacco industry to bear the costs because the system components can be implemented by the industry relatively easily and in bulk at the point of manufacturing, meaning the costs per pack are reduced.

Multiple companies offer a variety of track-and-trace systems with differing features. These systems use two main approaches—one based on IT/data processing (digital security) and the other on security printing (material security). An IT/data processing approach seems more able to meet the standards of WHO's Illicit Trade Protocol for several reasons: it is capable of handling the large volume of data produced by a high-volume product such as cigarettes, it has greater capacity to aggregate product units and preserve the parent-child relationship, it can be operated by other parties (the printing companies prefer to retain direct control, which can hinder collaboration), and is compatible with open standards and a range of applications, which facilitates data sharing (Tax Stamp News, 2014).

Tracking-and-tracing systems with varying degrees of sophistication have been implemented by several governments around the world, including Turkey, Brazil, Kenya, Malaysia, Albania, Canada, Panama,

Morocco, and the Philippines. In the United States, limited track-and-trace systems have been implemented in California (SICPA), Massachusetts (SICPA), and Michigan (Xerox). These systems only allow tracking and tracing for products that have entered into each state's legitimate distribution system. They do not allow tracking of products from the point of manufacturing or import to entry into the state distribution system and do not allow tracing of products back to sources outside of the state. As a result, while helpful in identifying illicit products, these state-based systems have limited effectiveness in curbing bootlegging and other illicit trade because they do not provide information on where illicit products were diverted from licit distribution channels into the illicit market and do not identify who was responsible for the products when first diverted. Therefore, a national system that could capture these missing links and allow for information sharing between states could be important for maximizing the effectiveness of tracking and tracing. Coordinated enforcement action could help to clamp down on illegal activity in national and sub-national regions, not just standalone states or jurisdictions.

Currently two federal agencies have the authority to implement tracking-and-tracing systems. In the United States, the FDA was given the authority to implement a national tracking-and-tracing system when it was granted regulatory authority over tobacco products by the Family Smoking and Prevention Act of 2009. Of note, tobacco tax enforcement falls outside of FDA's regulatory authority (Government Accountability Office, 2011). The TTB has tax collection-related authorities. In its Report to Congress in 2010 regarding illicit trade, TTB recommended as its top priority that "the Treasury Department work with the FDA on the development of any tobacco product tracing system so that the system can be used to the extent possible for enforcement purposes. Any 'track and trace' system that is implemented at the federal level should be shared by those agencies that have a jurisdictional interest, so as to maximize enforcement efforts with the least cost to the government" (US Department of the Treasury, 2010). Other agencies' efforts could also be important in ensuring the effectiveness of a track-and-trace system. For example, within the Justice Department, a robust enforcement and prosecution element could further ensure that any detected problems were followed up with action to close down illicit sources and with appropriate penalties, prosecution, and other deterrents to prevent repeat offenses.

### Turkey's Success

Tobacco tax revenues rose by 31.5% within the first year of implementing the track-and-trace system, with no increase in tax rates. Subsequent increases in tax rates have led to additional increases in tobacco tax revenues in Turkey.

#### Tracking-and-Tracing Case Study: Turkey

Over the past decade, Turkey has become one of the global leaders in tobacco control, implementing a comprehensive strategy that includes

- A complete ban on tobacco advertising, promotion, and sponsorship.
- A comprehensive smoke-free policy covering all enclosed public spaces and private workplaces.
- Multiple tax increases that have raised the share-of-tax in tobacco prices to among the highest in the world.
- Mass media public education programs.

As part of this effort, Turkey was the first country in the world to adopt and implement a tracking-and-tracing system, albeit with limited tracking features. Beginning in November 2007, all cigarettes sold in Turkey were required to carry digital tax stamps with overt and covert security features, including invisible ink and unique serial numbers that can be read with hand-held or other scanning devices. These stamps are applied at either local production facilities for cigarettes produced in Turkey or at foreign production facilities for imported cigarettes, with activation of the stamp's invisible code as the stamp is being applied during the production process. The average cost of the system was about \$0.00436 per stamp.

Enforcement efforts include random compliance checks using handheld scanners in retail outlets, as well as random inspections of imported tobacco products. Violators are penalized with fines amounting to double the amount of taxes owed on illicit products. Enforcement efforts were enhanced beginning in 2011 to include more frequent compliance checks, stronger penalties on violators, and greater cooperation and coordination among the revenue authorities and the Ministries of Justice, Foreign Affairs, Economy, and Internal Affairs (Tayyan, 2013).

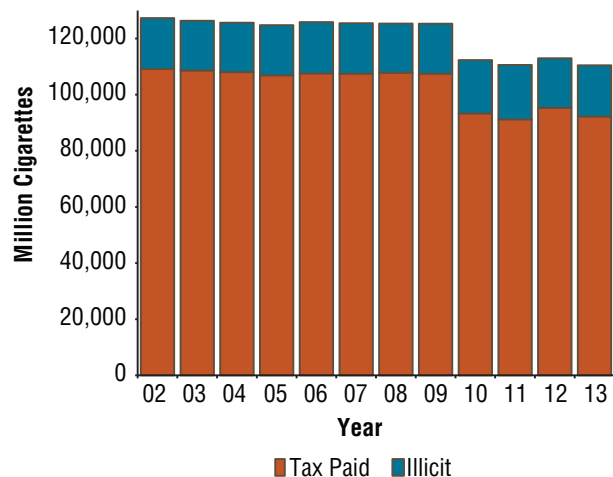
Even though a number of factors, including slow judicial processes, low penalties for offenders, and insufficient collaboration with neighboring countries

limited the effectiveness of Turkey's track-and-trace system efforts (Tayyan, 2013), its tobacco tax revenues rose by 31.5% within the first year of implementing the system, even though tax rates remained the same (NRC and IOM, 2015). Subsequent increases in tax rates have led to additional increases in tobacco tax revenues in Turkey, despite the reductions in tobacco use resulting from the tax hikes and implementation of other tobacco control policies (NRC and IOM, 2015).

The market share of illicit cigarettes in Turkey has fluctuated in the range of 14.0% to 17.5% in recent years (Euromonitor International, 2015). However, overall cigarette consumption in Turkey has fallen during this time, while cigarette taxes, cigarette prices, and tax revenue have been steadily increasing (**Figure 13**). This suggests that Turkey's tracking-and-tracing system has been at least partially effective in keeping the illicit tobacco market from growing, despite the country's high and increasing tobacco taxes.

Turkey renewed and expanded its contracts with SICPA-Assan in 2014, extending the system to cover cigarettes produced for export in an effort to assist foreign governments. The new system also includes a feature that allows end consumers to verify that a product is legitimate using a smart-phone app. The current system continues to have limited tracking features and is not fully compatible with WHO FCTC ITP standards for track-and-trace systems.

**Figure 13. Estimated Number of Cigarettes Consumed, by Tax-Paid and Illicit Status, Turkey, 2002-2013**



Source: Created from data in Euromonitor International, 2015.

### Potential Impact of Track and Trace

Controlling the tobacco product distribution chain from manufacture/import through retail sale is an essential component of curbing illicit tobacco trade. A growing number of countries have adopted tracking-and-tracing systems. A tracking-and-tracing regimen alone may reduce, but will not eliminate, all forms of illicit trade—for example, it cannot monitor production in illegal manufacturing facilities or counterfeit production. A national tracking-and-tracing system in the United States can achieve part of the public health and economic benefits described earlier (pp. 22-23), but needs to be a part of a wider comprehensive approach to reach its potential.

### State Measure: Three-Legged Stool (Licensing, Product Markings, and Enforcement)

The measures in the three-legged stool strategy are combined because of the high interaction between them. In this section, licensing and product markings will be described, followed by case examples where both measures were used and enforced.

#### Licensing

Effective control of the tobacco product supply chain requires an understanding of all parties involved in the manufacture and distribution of tobacco products, including producers, exporters and

importers, distributors, wholesalers, and retailers, as well as those involved with key inputs into tobacco product production such as producers of manufacturing equipment. In the United States, there are relatively few tobacco product manufacturers, importers, exporters, distributors, and wholesalers, but many thousands of tobacco product retailers. Therefore, tobacco retail licensing is the primary component of licensing the supply chain. Many states and local jurisdictions already require some or all tobacco retailers to be licensed (**Table 4**). State and local governments can prohibit licensed operators from dealing with unlicensed ones, thereby creating a stronger chain of accountability. A license can be revoked if the holder breaks the law, creating economic disincentives for engaging in illegal business practices such as illicit production or tax evasion. “Negative licensing” schemes can also be implemented, wherein regulated entities can be specifically excluded from engaging in any tobacco business because of their previous noncompliance. Retail licensing is a useful tool for both tax administration and point-of-sale tobacco control policies. Linking licensing systems with recordkeeping, tax stamps/markings, and a tracking-and-tracing system makes it more effective for deterring the sale of illicit tobacco products in otherwise legitimate retail outlets. Background checks, enhanced enforcement, and zero tolerance also make licensing more effective. For example, if inspectors are empowered to revoke retail licenses, retailers have an incentive to keep their stock clear of noncompliant products.

**Table 4. State Legislation for Retail Tobacco Product Licensure, United States, January 1, 2015**

License Type	Number of States	State or District of Columbia
Over-the-counter and vending machine licenses	36	Alabama, Alaska, Arkansas, California, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin
Over-the-counter license only	1	Idaho
Vending machine license only	5	Illinois, Kentucky, Michigan, North Carolina, South Carolina
No license	9	Arizona, Colorado, Missouri, New Mexico, Oregon, South Dakota, Tennessee, Virginia, Wyoming

While illegal manufacturing is not currently a significant contributor to illicit tobacco trade in the United States, strategies that reduce current forms of tax avoidance and evasion could increase incentives for illegal manufacturing (NRC and IOM, 2015). Therefore, it is important to take steps to prevent this from becoming problematic in the future. There are relatively few producers of the acetate tow used for cigarette filters, the specialized paper used for cigarette production, and tobacco product manufacturing equipment. Licensing of those producers and distributors, as well as others who supply materials and equipment necessary in tobacco production could help prevent illegal manufacturing by adding controls to this part of the supply chain.

#### Licensing Case Study: California

---

California's Cigarette and Tobacco Products Licensing Act of 2003 required the state Board of Equalization (BOE) to license all tobacco product importers, manufacturers, distributors, wholesalers, and retailers; before the Act, licenses were only required for distributors responsible for remitting taxes (NRC and IOM, 2015). The Act also gave the BOE enhanced enforcement authority, allowing its inspectors and investigators to issue civil and criminal citations.

#### Licensing Case Study: Canada

---

Canada adopted the Raw Leaf Tobacco Growers' Licensing Program in 2008, which reduced the production of raw tobacco in Canada and controlled its commercialization. As result, illegal manufacturers had to rely on imported tobacco, which increased their production costs. Since the imported tobacco was often of lower quality, illicit cigarettes could only be sold for a very low price, which lowered profit margins for illicit manufacturers and smugglers, and made this a less attractive business for large criminal organizations (Daudelin et al, 2013). While this isn't entirely pertinent to the United States because illegal manufacturing is not currently a major source of illicit cigarettes in the US market, this example demonstrates how other parts of the tobacco supply side can be regulated.

### Potential Impact of Licensing

Licensing can be effective as part of a comprehensive approach to preventing and reducing illicit trade but will have limited impact on its own. However, licensing does address several important issues

such as identifying the key players (e.g., retailers), and provides a penalty option for repeat offenders (e.g., suspending or revoking a license), which may deter illegal behavior. It is notable that licensing, as a tobacco control measure, is also a way to address minors' access to tobacco products and supports some point-of-sale initiatives such as zoning restrictions, so it could be helpful in broader tobacco control efforts.

Knowing who is involved in tobacco manufacturing, importing, wholesaling, distribution, and retailing is critical for effective control of the tobacco product distribution chain. While many states have implemented licensing requirements that help them enforce their tobacco tax laws and youth access policies, others have not. In addition to improving control of the distribution chain, licensing requirements also deter illicit trade, given the potential suspension or revocation of violators' licenses. License requirements could also be extended to suppliers of key inputs into tobacco product manufacturing, including manufacturing equipment, cigarette papers, and acetate tow. Nontrivial licensing fees could also generate revenues that could be used to support other efforts to reduce tax avoidance and evasion.

### Tax Stamps and Other Product Markings

Tax stamps and other product markings can serve as a product authentication tool, a tracking/tracing tool, and a revenue collection tool. These markings can have both overt and covert security features that enable end users to verify the legitimacy of the product and allow authorities to determine whether taxes have been paid. In the United States, tax stamps are the key product marking for tobacco products and are typically applied at the wholesale level. All states but three (North Carolina, North Dakota, and South Carolina), and many local governments with significant local taxes, require tax stamps on cigarettes. In contrast, very few state or local governments require stamping of other tobacco products (**Figure 14**) (Gourdet et al., 2015). Requiring stamps on other tobacco products, especially cigarette analogues such as little cigars and RYO, is an important aspect of preventing tax avoidance by minimizing opportunities and incentives for substitution (Chaloupka et al, 2012).



### High-Tech Tax Stamp Impacts

- California: In the first decade following the implementation and upgrading of California's encrypted tax stamp, the state has recovered an estimated \$450 million in additional tax revenue, well beyond incremental implementation and enforcement costs.
- Massachusetts: Despite decreases in smoking rates and consumption, which reduced overall sales, the state still generated an average of \$551 million in cigarette excise tax revenues in the first 3 years following the full implementation of the encrypted stamp in July 2010, compared to \$555 million in FY 2010 when smoking rates and consumption were higher.

### Tax Stamps Case Studies: California, Massachusetts, and Michigan

Three US states have adopted and implemented encrypted tax stamps for cigarettes: California in 2005, Massachusetts in 2010, and Michigan in 2014. California adopted the stamp to address unrealized cigarette tax collections, estimated to be at least \$180 million annually in the early 2000s, and to counter high-quality counterfeit stamps that were nearly impossible to distinguish from the state's official stamp (Bartolo and Kimsey, 2013). In contrast, the primary driver of adoption in Massachusetts was to ensure that the state received its full Master Settlement Agreement (MSA) payments, given concerns that nonparticipating manufacturers were not fully compliant with escrow payments and other obligations, which led to withholding of \$20 million to \$35 million in annual MSA payments to the state (Massachusetts Commission on Illegal Tobacco, 2014). Both factors—tax avoidance/evasion and withheld MSA payments—were behind Michigan's more recent adoption of an encrypted tax stamp. The encrypted stamp is one component of a more comprehensive effort, including licensing, to deter illicit tobacco trade in these states.

California adopted an encrypted stamp and related technology, with implementation beginning in 2005. Features of California's initial encrypted stamp included the name and address of the licensed distributor applying the stamp; the date the stamp was affixed; overt markings, including the California state bear and the denomination of the stamp; and covert features, including invisible ink and a unique serial number

(Figure 15). Encrypted information on the stamp allows state investigators to verify that taxes have been paid and to detect counterfeit stamps. The state hired additional inspectors and investigators to conduct compliance checks across the state. Before 2003, about 1,200 inspections were conducted annually; since then, the state has averaged well over 10,000 inspections per year, or roughly one-quarter of licensees.

Despite different motives for adopting its encrypted tax stamp, Massachusetts has followed a similar path. In 2010, the state adopted an encrypted stamp with a variety of overt and covert security features, including color-shifting ink, unique alphanumeric identifiers, information on the distributor applying the stamp and the date on which it was applied, and other information. Covert features were readable by a handheld scanner. In 2013, Massachusetts began using a new stamp with enhanced security features. As part of the implementation, Massachusetts has stepped up enforcement efforts, conducting compliance checks in about one-third of the state's tobacco product retailers each year. A unique feature of the Massachusetts effort is that retailers also play a role in compliance efforts, using a low-cost (about \$20) credit card-sized device that allows them to authenticate the stamp. Under the state's law, retailers are responsible for inspecting products when they are received and are required to immediately return unstamped or improperly stamped products to the supplier. Estimates of the effectiveness of Massachusetts's encrypted stamp and related enforcement efforts in recovering lost cigarette tax revenue are not available. However, in a recent report, the state's Commission on Illegal

Figure 15. California Encrypted Cigarette Tax Stamps



Source: Bartolo and Kimsey, 2013.

**Figure 16. Michigan’s Encrypted Tax Stamp**



Source: OpSec Security, Inc. Reprinted with permission.

Tobacco notes that the combination of the encrypted stamp and compliance checking has increased retailer compliance in recent years (Massachusetts Commission on Illegal Tobacco, 2014). Given the underlying downward trend in cigarette smoking during this time, by an average of 2% to 3% each year, revenues would have been expected to fall by \$11 million to \$17 million each year. However, the state generated an average of \$551 million in cigarette excise tax revenues in the first 3 years following the full implementation of the encrypted stamp in July 2010, compared to \$555 million in FY 2010 (Massachusetts Commission on Illegal Tobacco, 2014).

In 2013, Michigan deployed a new digital cigarette tax stamp with several overt and covert security features, including a holographic shifting image, markings indicating the number of cigarettes in the pack, micro and nanotext that can only be read with a magnifying glass, and a unique quick response (QR) code and serial number (Figure 16). The QR code is unique because consumers can use a smart-phone or tablet QR-reading app to access information on cessation programs, report violations of the state’s youth access policies, link to a tip line to report noncompliant packs, and be educated about the harms from illicit tobacco sales and purchases. Enforcement authorities can validate stamps using the smart-phone-based eTRACS system. As part of the implementation of the system, the Michigan state police department has created teams of enforcement officers in each of the state’s seven districts, and the state Department of Treasury has created its own enforcement team.

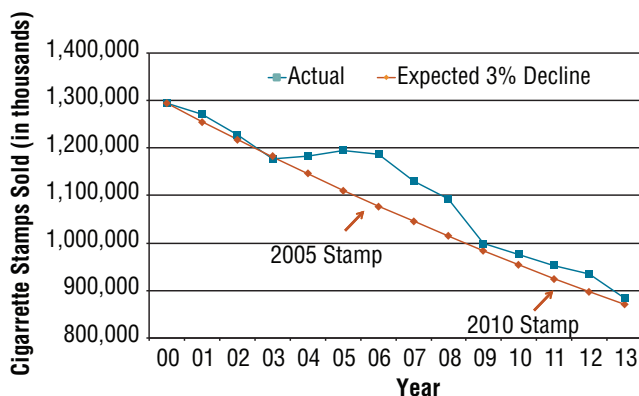
**Potential Impact of Tax Stamps and Other Product Markings**

The initial implementation of California’s encrypted stamp was highly successful, leading to the recovery of \$125 million in tax revenues in the first 20 months of implementation (US Department of the Treasury, 2010). In the first decade following the implementation and upgrading of California’s encrypted tax stamp, the state has recovered an estimated \$450 million in additional tax revenue, well beyond the incremental implementation and enforcement costs (NRC and IOM, 2015) (Figure 17).

Replication of these efforts across all US states could support recovery of billions of dollars of state tax revenue that would otherwise be evaded or lost.

Tax stamps are an important component of effective tobacco tax administration. Three states (North Carolina, North Dakota, and South Carolina) do not require cigarette tax stamps, facilitating the bootlegging of cigarettes from these states to other jurisdictions. Most other states use older heat applied (low-tech) tax stamps rather than the harder-to-counterfeit digital (high-tech) tax stamps with a variety of overt and covert security features, including information that allows tracking of tobacco products once they’ve entered the state distribution chain. Only some states require stamping of other tobacco products and even those that do, do not require stamping of all other tobacco products. Therefore, all states could facilitate more effective tax administration and enforcement and help curb illicit tobacco trade by enhancing their use of this intervention, whether by upgrading to high-tech stamps or by bringing

**Figure 17. Projected and Actual Cigarette Tax Stamps Sold, California, 2000-2013**



Source: Created from data in Bartolo and Kimsey, 2013.



other tobacco products into the stamping system. For greater effectiveness, states could implement digital tax stamps and related systems in a way that supports the ability of one state to track all tobacco products and to trace illicit tobacco products back to sources in another state, and that maximizes the sharing of information across states.

## Federal and State Public Education Efforts

Public education efforts have been an effective tool for tobacco control, contributing to reduced smoking initiation among youth and increasing cessation among adult tobacco users (NCI, 2008; McAfee et al., 2013). Public education efforts on the negative effects of illicit trade on government revenue and public safety, as well as the public health consequences of increased smoking rates, particularly among youth, can curb both the supply of and demand for illicit tobacco products. Such efforts have been implemented around the world, and mostly run by governments (e.g., in the UK and Canada), but other entities, such as retailer associations or advocacy groups, have also supported them (e.g., in Ireland and Hong Kong). These are generally one component of a broader, comprehensive approach to reducing illicit tobacco trade (NRC and IOM, 2015). In the United States, public education efforts on illicit trade are rare.

Some of these education efforts try to change public attitudes by directly attacking the “culture of tolerance” for smuggling and the perception that tobacco smuggling is a victimless crime, which allows illicit tobacco trade to thrive. Several encourage citizen activism (e.g., by calling a hotline to report illegal activities). Others discuss the negative implications of smoking and illicit consumption, thus building support for tobacco control in general. Some target disadvantaged communities, and others focus on retailers, educating them on how to distinguish authentic from counterfeit tax markings and how to identify counterfeit goods. As with national efforts in this area, states and local jurisdictions can educate the public about the health, economic, and social consequences of illicit tobacco trade and provide mechanisms for consumers to report illicit tobacco sales to relevant enforcement authorities. Some state and local public education efforts have been effective at enhancing compliance and enforcement efforts by providing rewards for tips that lead to successful enforcement actions. Publicizing these enforcement actions and the resulting penalties for those involved in illicit trade could further increase compliance.

## Public Education Case Studies: UK and Canada

Public education can be an effective intervention when implemented as part of a comprehensive approach to addressing illicit trade at both federal and state levels. The UK, Canada, the EU, and Malaysia, have used this measure as a part of broader efforts to combat illicit trade. In both the UK and Canada, public education focused on health-related messaging and used a variety of traditional and new media channels to reach the public.

The goal of the public education effort run by the Royal Canadian Mounted Police between 2008 and 2011 was to raise awareness about the public safety and health consequences of the illicit tobacco trade. The communication strategy involved public meetings with local decision makers, partnership with local drug-focused groups, presentations to local police, information sheets for retailers, information booths at local malls, public service announcements, and new websites (both internal and for general public) (NRC and IOM, 2015). Early public education efforts in the UK highlighted the harms from illicit tobacco using a variety of mass media channels. The latest efforts in the UK specifically avoided the “greater harms” message and focused on the illegality of counterfeits and their increased availability to children, in an effort to address the illicit trade problem while not promoting legal cigarettes as less harmful.

## Public Education Case Study: Chicago and Cook County

As a part of their efforts to curb tax evasion, both the city of Chicago and Cook County have established reward programs that encourage consumers to report retailers selling inappropriately stamped cigarettes, with some limited efforts to raise awareness of these programs through transit and other advertising on websites and in other channels. Cook County’s “Cigarette Tax Reward Program” began in 2011, while Chicago’s “Check the Stamps” program started in June 2014. Both programs allow consumers to report violations via dedicated websites (<https://apps.cookcountyil.gov/dor/index.php>) or a telephone tip line. The programs differ in their reward schemes. Both provided rewards for tips that lead to actions against noncompliant retailers. The county’s program provides escalating rewards based on the number of illegal packs confiscated as a result of a tip. Rewards ranged from \$250 for confiscations of 40 or fewer packs to \$1,000 for confiscations of more than 250 packs. The Chicago program provides a flat reward of

\$100 and rewards reports of single cigarette sales or sales to minors, in addition to tax violations.

Chicago's program also highlights the consequences of illegal cigarette sales, emphasizing the negative impact on honest businesses, contribution to youth smoking, and lost tax revenues. While the program operates on a relatively limited budget (\$285,000 in 2014, which included the fixed costs of the creative work and other startup costs), it has included some spending for transit and other advertising efforts, while generating a fair amount of earned media coverage. Although still in its infancy, the program does appear to be having some impact, with reports of violations up sharply since it began. Moreover, the early data suggest that the program is highly cost-effective, generating considerably more revenue from fines than it costs. Given its relatively low marginal costs, it is likely to be even more cost-effective over time (City of Chicago, 2014).

### Potential Impact of Public Education

Educating the public about the consequences of illicit trade may reduce the demand for illicit tobacco by highlighting the economic, health, and social consequences of illicit tobacco use. Encouraging the use of tip lines and other approaches for reporting illicit tobacco sales can facilitate enforcement actions, which can reduce the supply of illicit tobacco products, as seen in Chicago (NRC and IOM, 2015). To date, education efforts focused on illicit tobacco products in the United States have largely focused on getting consumers to report illegal sales.

Some indicators suggest that the UK public education effort has reduced demand for illegal products, even though it is difficult to separate the impact of the program from a broader UK strategy to reduce illicit trade (NRC and IOM, 2015). Public education efforts may require significant investment and have variable results (Sweeting et al, 2009). Thus this measure may not be as effective on its own but can be more effective as part of a comprehensive approach to prevent and reduce illicit trade.

### Tribal Tobacco Policies

Despite tribal sovereignty, which gives Native American tribes federally protected interests in self-governance, federal tobacco policies and tobacco taxes apply to all tobacco products sold on tribal lands. The same is not true for state tobacco control policies. Under the premise of tribal sovereignty,

tribes are considered to be "distinct, independent political communities" (*Worcester v. Georgia*, 1832) that maintain the right to self-govern (*Williams v. Lee*, 1959). Thus, states are generally unable to file suit against tribes unless sovereignty is waived, or Congress explicitly authorizes the suit (*Kiowa Tribe v. Manufacturing Technologies*, 1998).

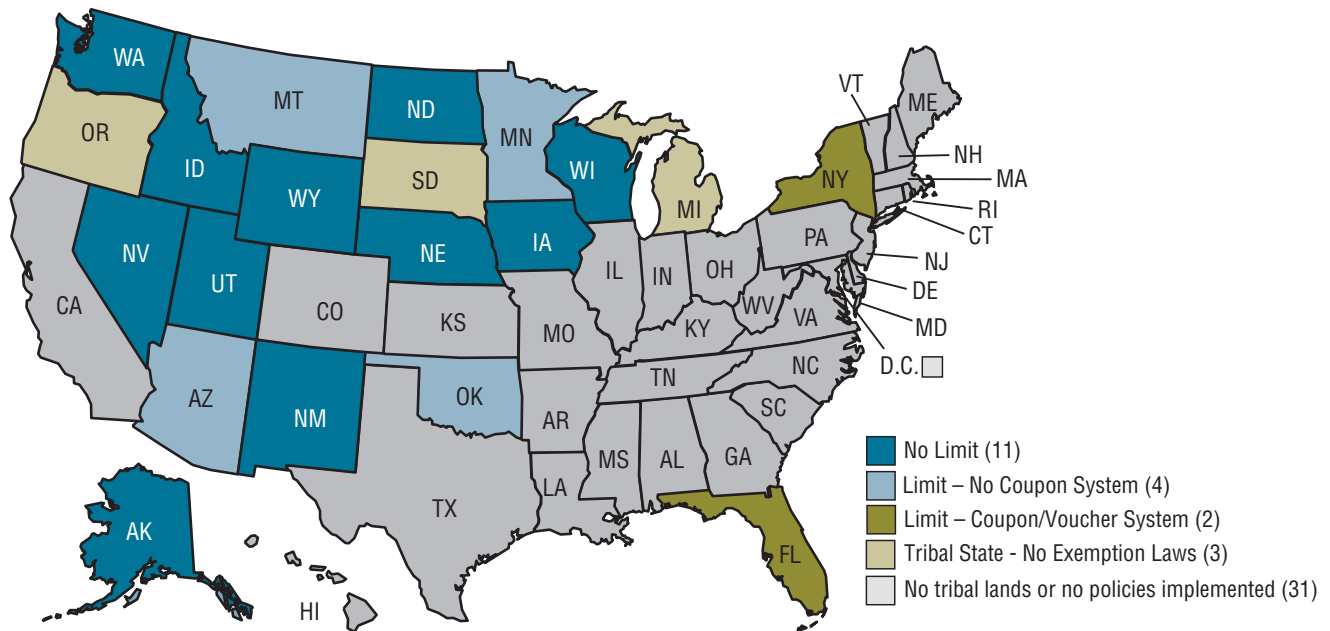
Under the Indian Commerce Clause, on-reservation sales to tribal members are exempt from state taxation. Tribal members are registered members of the tribe on whose land the purchase is being made. Native Americans on another tribe's land (nonmembers) and non-Native Americans are not exempt from state taxation on purchases made on-reservation (*Oklahoma v. Chickasaw Nation*, 1995). Because of this stratified tax obligation, there is a potential conflict between a tribe's interest in protecting its right to self-govern, and a state's interest in being able to enforce its tobacco laws on nontribal member and non-Native American consumers. To remedy this potential conflict, the US Supreme Court held that states could impose basic enforcement mechanisms on tribal lands when such mechanisms were determined to be a "minimal burden" (*Washington v. Confederated Tribes of Colville Indian Reservation*, 1980; *Oklahoma Tax Com'n v. Chickasaw Nation*, 1995). Nevertheless, jurisdictional issues can make it difficult for states to enforce tax collection on nonmembers or non-Native Americans who purchase tobacco on tribal lands.

Further, the US Supreme Court has held that tribal sovereignty does not completely prevent a state from seeking remedy. Specifically, states may seek recourse by filing suit against individual agents or tribal officers for lost tax revenue, by collecting taxes from wholesalers before purchase by tribal retailers, or by entering into tax agreements with a tribe (*Oklahoma Tax Com'n v. Citizen Band Potawatomi Indian Tribe of Oklahoma*, 1991). It is under this guidance that many states have created tobacco taxation policies that apply to tribal tobacco sales, including tax-free allotments (quotas) or refunds, tax stamps, and/or revenue sharing agreements (compacts).

A quota or allotment system establishes a quantity of tax-exempt products to be distributed to tribal retailers, usually based on member population and estimated consumption by members. The effectiveness of this approach depends on the allocation formula, which can be overly generous and result in more tax-exempt products being provided to tribal retailers than are consumed by tribal members. Additionally,



**Figure 19. State Policies Limiting Amount of Tax Exempt Cigarettes Tribes Can Receive**



Source: DeLong et al, 2014.

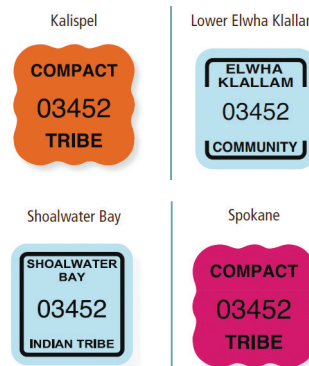
**Tribal Sales Case Studies: US States**

Thirty-four US states have lands belonging to federally recognized tribes within their borders. Twenty of these states have implemented policies to reduce tax evasion originating on these lands, include negotiation of compacts with some or all tribes in the state and/or allotment, quota, or rebate schemes (Figure 19). State legislation authorizing the compacts suggests or requires a variety of provisions, most often addressing the sharing of the tobacco tax revenues between states and tribes but also including provisions on the use of these revenues, minimum selling prices, enforcement provisions, and stamping requirements.

Three states (Oregon, Michigan, and South Dakota) rely solely on compacts and have relatively low rates of smokers purchasing cigarettes on tribal lands, according to the most recently available wave of the TUS-CPS (Table 5) (Oregon Health Authority, 2014; Nordeen, 2013; and South Dakota Department of Revenue, 2012). These compacts are likely successful in part because they govern all cigarettes sold on tribal lands. That is, there are no allowances for tax-exempt cigarettes intended for sale to tribal members, limiting opportunities for tax evasion—all cigarettes sold on tribal lands under these agreements include state taxes (Figure 19).

The lack of action in the remaining 14 states with tribal lands may be due to a combination of factors, including a limited tribal presence in the state, the location of tribal lands far from state population centers, or low state tobacco taxes so that tax-exempt tobacco products sold on tribal lands are not significantly less expensive than those sold elsewhere in the state.

**Figure 20. Example of Washington Tax Stamps**



Source: Washington State Department of Revenue, 2015.

**Table 5. Percentage of Smokers Reporting Cigarette Purchases and Relative Prices on Native American Reservations**

State	State Excise Tax, \$ per Pack	Smokers Purchasing on Reservations, %	Reservation Price as a Percentage of Off-Reservation Price
AL <sup>a</sup>	0.43	1.87	94.00
AK <sup>a</sup>	2.00	0.45	87.07
AZ	2.00	21.10	72.90
CA <sup>a</sup>	0.87	1.68	92.42
CO <sup>a</sup>	0.84	0.56	87.42
CT <sup>a</sup>	3.00	0.67	109.37
FL <sup>a</sup>	1.34	3.72	91.12
ID	0.57	8.10	76.05
IA <sup>a</sup>	1.36	2.35	48.62
KS	0.79	5.31	43.39
LA <sup>a</sup>	0.36	0.38	91.19
ME <sup>a</sup>	2.00	0.58	93.38
MA <sup>a</sup>	2.51	0	NA
MI <sup>a</sup>	2.00	0.94	80.65
MN <sup>a</sup>	1.57	2.44	93.18
MS <sup>a</sup>	0.68	0	NA
MT <sup>a</sup>	1.70	3.06	90.71
NE <sup>a</sup>	0.64	3.05	72.00
NV	0.80	14.58	78.66
NM	1.35	27.42	74.81
NY	3.78	17.09	39.28
NC <sup>a</sup>	0.45	1.04	98.39
ND <sup>a</sup>	0.44	6.69	90.24
OK	1.03	31.89	78.39
OR <sup>a</sup>	1.18	0.52	113.14
RI	3.46	1.83	79.43
SC <sup>a</sup>	0.41	0.27	121.90
SD <sup>a</sup>	1.53	1.25	86.47
TX <sup>a</sup>	1.41	1.41	83.87
UT <sup>a</sup>	1.34	0	NA
VA <sup>a</sup>	0.30	0.43	89.89
WA	2.91	16.95	64.71
WI	2.52	6.72	85.15
WY	0.60	5.14	82.95

Abbreviation: NA, not applicable.

<sup>a</sup> Indicates estimates based on fewer than 20 respondents reporting reservation purchases; states with no federally recognized tribes are excluded.

Source: National Cancer Institute.

**Table 6. Overview of Tribal Taxation Measures**

Measure	State Example	Key Features
Rebate agreements	Wisconsin	Applies the state tax to all cigarettes sold on tribal lands but then provides rebates to the tribes intended to offset the taxes paid by tribal consumers.
Compact agreements	Washington	Has unique tax stamps for cigarettes sold by tribes with a compact and another stamp for cigarettes sold by tribes without compacts ( <b>Figure 20</b> ).
Differential tax stamps	Arizona	Uses color-coded stamps to tax some or most of the cigarettes sold on tribal lands, while allocating enough tax-exempt products that are intended for sale to tribal members to satisfy tribal demand.
Allocation via coupons	Florida	Compacts with the Seminole and Miccosukee tribes that apply the state tax to all cigarettes sold on tribal lands, but the state then issues coupons to tribes for tax-free cigarette purchases.
Mixed approach	Oklahoma	Has agreements that levy “tribal taxes” that may differ across tribes, with the agreements varying in how the revenues generated from the tax are shared between the state and the tribe.
	New York	Allows tribes to choose among various options, including receiving an allocation of tax-exempt cigarettes intended to satisfy tribal demand (“prior approval”), collecting the state tax on all cigarettes sold on the reservation while providing coupons to offset the tax for tribal members, or individually negotiated agreements that allow for different approaches to protecting tribal sovereignty while limiting availability of nontaxed products to nontribal members.

There are multiple approaches and combinations of approaches available to states and tribes to work together on taxation. **Table 6** highlights a number of examples from different states. Note that these are not inclusive of all states that use each measure.

Fifteen states have policies addressing the stamping of cigarettes (and in some cases other tobacco products, including little cigars and RYO) sold on tribal lands (**Figure 21**).

#### Tribal Sales Case Study: Canada's First Nation Experience

In conjunction with the Royal Canadian Mounted Police (RCMP) launch of its first “Contraband Tobacco Enforcement Strategy” in 2008, Alberta, British Columbia, Saskatchewan, Manitoba, Quebec, and New Brunswick began implementing quota and/or refund policies to reduce the sale of tax-free cigarettes to non-Natives on Native reserves. The policies either allow for the allocation of tax-exempt cigarettes to First Nation retailers, based on population and consumption estimates, or require all applicable taxes to be applied to cigarettes sold on reserves, while allowing retailers to sell products to members of the reserve at net-of-tax prices, and then apply for a refund for the taxes they pay on these sales. In addition, British Columbia has implemented a policy that effectively limits the number of retailers operating on First Nation reserves in the province (RCMP, 2008).

### Potential Impact of Policies Addressing Tribal Sales

In the United States, the effects of efforts to curb reservation-based tax avoidance and evasion would be largely confined to states where tobacco products bootlegged from reservations are relatively available and where tobacco user purchasing on reservations is relatively common. By reducing price differences on and off reservations, sales would shift from reservation outlets to other retailers in the state, leading to increases in tax-paid sales and state tax revenues, while overall tobacco use and its consequences would fall as a result of the reduced availability of cheaper cigarettes.

To the extent that the price differences are reduced through compacts that allow tribes to retain some or all of the taxes collected on sales made by reservation retailers, tribes could also see an increase in revenues. Increasing revenues could benefit tribes in a number of ways, particularly if these funds are earmarked for tobacco cessation or other health initiatives. A rise in on-reservation prices could also reduce tobacco use among tribal members, which would help to reduce tobacco-related health disparities in this population related to high tobacco use prevalence.







## CONCLUSIONS

---

- 1.** Tax avoidance and evasion are significant and growing problems in the United States. An estimated 8.5% to 21% of cigarette purchases avoid or evade state and local cigarette taxes. Sizable differences in taxes across jurisdictions are the primary driver of tobacco tax avoidance and evasion, leading to individual cross-border purchases in nearby localities and on Native American reservations, and elsewhere, and to bootlegging of tobacco products from low-tax jurisdictions for resale in high-tax jurisdictions.
- 2.** Comprehensive tobacco prevention and control practices, including regulation, are effective in reducing death and disease caused by tobacco. Implementing measures to reduce illicit trade should not impede continued efforts to put effective, evidence-based tobacco control and regulatory interventions in place in the United States.
- 3.** Proven measures to reduce tax avoidance and evasion include:
  - Prioritizing and coordinating enforcement efforts; increasing penalties for those caught engaging in illicit tobacco trade.
  - Harmonizing tobacco taxes across jurisdictions by setting minimum tax rates.
  - Increasing control over the supply chain through licensing, adopting newer technologies such as encrypted tax stamps, and implementing a tracking-and-tracing system.
  - Educating the public about the consequences of illicit tobacco markets and providing mechanisms for consumers to report violators.
- 4.** Governments that have adopted and implemented some combination of these interventions have succeeded in curbing illicit tobacco trade. More comprehensive and coordinated approaches are more effective. Improving surveillance, regularly updating and revising measures to account for changes in the illicit tobacco markets, and adopting newer technologies as they become available are critical. The use of these approaches can increase revenues that exceed their implementation costs while improving public health by reducing tobacco use and its consequences.



- Barker DS, Wang S, Merriman D, & Chaloupka FJ. (In progress). *Estimating the Prevalence of Tax Avoidance and Evasion in the U.S.: Results from A National Littered Cigarette Pack Collection*. Chicago, IL: Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago.
- Bartolo L, & Kimsey B. (2013, July). *California's Cigarette Tax Stamp*. Presented at Combating the Illicit Tobacco Trade, Centers for Disease Control and Prevention, Atlanta GA.
- Campaign for Tobacco-free Kids. (2015, September 28). *State cigarette excise tax rates and rankings*. Retrieved from <http://www.tobaccofreekids.org/research/factsheets/pdf/0097.pdf>.
- Chaloupka FJ, Chriqui JF, Huang J, DeLong H, Gourdet CK, Pesko M, Tauras J, et al. (2015, April). *Researching the Effects of Tobacco Taxes: What We Know and What We Need to Know*. Presented at the State and Community Tobacco Control Research Program meetings, National Cancer Institute, Bethesda MD.
- Chaloupka FJ, & Huang J. (2015). *A Significant Cigarette Tax Rate Increase in Kansas Would Produce a Large, Sustained Increase in State Tobacco Tax Revenues*. Chicago, IL: Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago.
- Chaloupka FJ, Yurkeli AA, & Fong GT. (2012). Tobacco taxes as a tobacco control strategy. *Tobacco Control*, 21(2), 172-180.
- Chriqui J, DeLong H, Gourdet C, Chaloupka F, Matthes Edwards S, Xu X, & Promoff G. (2015). Use of tobacco tax stamps to prevent and reduce illicit tobacco trade — United States, 2014. *MMWR*, 64, 20.
- City of Chicago. (2014, October 9). *City of Chicago investigators crackdown on 165 businesses in 60 days for tobacco violations*. Retrieved from <http://www.cityofchicago.org/city/en/depts/cdph/provdrs/drug/news/2014/oct/city-of-chicago-investigators-crackdown-on-165-businesses-in-60.html>.
- Coady MH, Jasek J, Davis K, Kerker B, Kilgore EA, & Perl SB. (2012). Changes in smoking prevalence and number of cigarettes smoked per day following the implementation of a comprehensive tobacco control plan in New York City. *Journal of Urban Health*, 89(5), 802-808.
- Colledge JW. (2012, February). *Tracing, Tracking & the Draft Illicit Trade Protocol*. Presented on the Campaign for Tobacco-Free Kids Webinar. Retrieved from [https://view.officeapps.live.com/op/view.aspx?src=http%3A%2F%2Fwww.tobaccocontrol.org%2Ffiles%2Fpresentations%2FCTFK-ILC Tracing and Tracking Webinar PPT Presentation.pps](https://view.officeapps.live.com/op/view.aspx?src=http%3A%2F%2Fwww.tobaccocontrol.org%2Ffiles%2Fpresentations%2FCTFK-ILC%20Tracing%20and%20Tracking%20Webinar%20PPT.Presentation.pps).
- Congressional Budget Office. (2012, June 13). *Raising the Excise Tax on Cigarettes: Effects on Health and the Federal Budget*. Retrieved from <https://www.cbo.gov/publication/43319>.
- Daudelin J, Soiffer S, & Willows J. (2013). *Border Integrity, Illicit Tobacco, and Canada's security*. Ottawa, Ontario, CA: Macdonald-Laurier Institute.
- Davis KC, Grimshaw V, Merriman D, Farrelly MC, Chernick H, Coady MH, Campbell K. (2014). Cigarette trafficking in five northeastern US cities. *Tobacco Control*, 23(e1):e62-e68.
- DeLong H, Gourdet C, Goodman C, Chriqui JF, & Chaloupka FJ. (2014, September). *State Tax Laws Governing Tribal Tobacco Sales*. Poster at the State and Community Tobacco Control (SCTC) Conference. Retrieved from [http://tobacconomics.org/wp-content/uploads/2015/02/DeLong\\_TribalTax\\_SCTC\\_Sept2014.pdf](http://tobacconomics.org/wp-content/uploads/2015/02/DeLong_TribalTax_SCTC_Sept2014.pdf).
- Euromonitor International. (2015). *Passport - tobacco*. London, GB: Euromonitor International.
- European Parliament's Committee on Budgetary Control. (2014). *Workshop on Cigarette Smuggling Proceedings*. Brussels, BE: European Parliament's Committee on Budgetary Control.
- European Commission. (2015, July). Directorate-General Taxation and Customs Union, Indirect Taxation and Tax Administration, Indirect taxes other than VAT. Retrieved from: [http://ec.europa.eu/taxation\\_customs/resources/documents/taxation/excise\\_duties/tobacco\\_products/rates/excise\\_duties-part\\_iii\\_tobacco\\_en.pdf](http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/tobacco_products/rates/excise_duties-part_iii_tobacco_en.pdf).
- Federal Trade Commission. (2012, September 21). *Federal Trade Commission cigarette report for 2009 and 2010*. Retrieved from <https://www.ftc.gov/reports/federal-trade-commission-cigarette-report-2009-2010>.
- Fix BV, Hyland A, O'Connor RJ, Cummings KM, Fong GT, Chaloupka FJ, & Licht AS. (2014). A novel approach to estimating the prevalence of untaxed cigarettes in the USA: findings from the 2009 and 2010 International Tobacco Control Surveys. *Tobacco Control*, 23(S1):i61-i66.
- Gourdet CK, Chriqui JF, DeLong HR, Goodman C, & Chaloupka FJ. (2015, April). *State Law Approaches to Taxing Other Tobacco Products (OTP) and Reducing Cigarette Tax Avoidance*. Presented at the State and Community Tobacco Control Research Program meetings, National Cancer Institute, Bethesda, MD.
- Government Accountability Office. (2011, March). *Illicit Tobacco: Various Schemes Are Used to Evade Taxes and Fees*. Report to Congressional Committees. Retrieved from <http://www.gao.gov/new.items/d11313.pdf>.
- Guindon GE, Driezen P, Chaloupka FJ, & Fong GT. (2014). Cigarette tax avoidance and evasion: findings from the International Tobacco Control Policy Evaluation Project. *Tobacco Control*, 23(S1), i13-i22.
- HM Revenue and Customs and Border Force. (2015). *Tackling Illicit Tobacco: From Leaf to Light - The HMRC and Border Force Strategy to Tackle Tobacco Smuggling*. London, GB: HM Revenue & Customs.
- Hyland A, Laux FL, Higbee C, Hastings G, Ross H, Chaloupka FJ, Fong GT. (2006). Cigarette purchase patterns in four countries and the relationship with cessation: findings from the International Tobacco Control (ITC) Four Country Survey. *Tobacco Control*, 15(S3), iii50-iii64.
- International Agency for Research on Cancer. (2011). *IARC Handbooks of Cancer Prevention, Tobacco Control, Volume 14. Effectiveness of Tax and Price Policies for Tobacco Control*. Lyon, FR: International Agency for Research on Cancer.
- Interpol. (2014). *Countering Illicit Trade in Tobacco Products - a Guide for Policy-Makers*. Lyon, FR: Office of Legal Affairs, Interpol General Secretariat.
- Joossens L, Merriman D, Ross H, & Raw M. (2009). *How Eliminating the Global Illicit Cigarette Trade Would Increase Tax Revenue and Save Lives*. Paris, FR: International Union Against Tuberculosis and Lung Disease.
- Joossens L, & Raw M (2012). From cigarette smuggling to illicit tobacco trade. *Tobacco Control*, 21(2), 230-234.
- Kiowa Tribe v. Manufacturing Technologies*, 523 U.S. 757 (1998).
- Kurti MK, von Lampe K, & Thompkins DE. (2013). The illegal cigarette market in a socioeconomically deprived inner-city are: the case of the South Bronx. *Tobacco Control*, 22(2), 138-140.
- Kurti MK, von Lampe K, & Johnson J. (2015). The intended and unintended consequences of a legal measure to cut the flow of illegal cigarettes into New York City: The case of the South Bronx. *American Journal of Public Health*, 105(4), 750-756.

- Massachusetts Commission on Illegal Tobacco. (2014). Report of Commission on Illegal Tobacco on the Illegal Tobacco Market and Resulting Loss of Revenue in the Commonwealth of Massachusetts. Retrieved from <http://www.mass.gov/dor/docs/dor/cigarette/pdfs/commissionreportonillegaltobacco.pdf>.
- Maxwell JC Jr. *Maxwell Report: Year End & Fourth Quarter 2014 Cigarette Industry*. Richmond, VA: John C. Maxwell, Jr., 2015.
- McAfee T, Davis K, Alexander R, Pechacek T, & Bunnell R (2013). Effect of the first federally funded US antismoking national media campaign. *The Lancet*, 382(9909), 2003-2011.
- National Cancer Institute. (2008). The Role of Media in Promoting and Reducing Tobacco Use. Tobacco Control Monograph Series. Retrieved from <http://cancercontrol.cancer.gov/brp/tcrb/monographs/19/index.html>.
- National Cancer Institute. The Tobacco Use Supplement to the Current Population Survey (TUS-CPS). Retrieved from: <http://cancercontrol.cancer.gov/brp/tcrb/tus-cps/>.
- National Research Council & Institute of Medicine. (2015). *Understanding the U.S. Illicit Tobacco Market: Characteristics, Policy Context, and Lessons from International Experiences*. Washington DC: The National Academies Press.
- New York City Department of Finance. (2015). Cigarette Inspections and Seizures.
- New York City Department of Finance. (2015a). CTX Inspections and Seizures. Retrieved from FOIL request, January 23, 2015.
- New York City Department of Finance (2015b). CTX Assessments. Retrieved from FOIL request, January 23, 2015.
- New York State Assembly. (2015). Bill 23722-2015. Retrieved from <http://open.nysenate.gov/legislation/bill/S3722-2015>.
- Nordeen L. (2013, July). *Michigan: Working with Native American Tribes and Collaborating Across State Departments*. Presented at Combating the Illicit Tobacco Trade, Centers for Disease Control and Prevention, Atlanta, GA.
- Oklahoma v. Chickasaw Nation, 515 U.S. 450 (1995).
- Oklahoma Tax Com'n v. Chickasaw Nation, No. 94-771, United States Supreme Court (1995).
- Oklahoma Tax Com'n v. Citizen Band Potawatomi Indian Tribe of Oklahoma, No. 89-1322, United States Supreme Court (1991).
- Oregon Health Authority. (2014). *Oregon Tobacco Laws and Policies*. Portland, OR: Tobacco Prevention and Education Program, Health Promotion and Chronic Disease Prevention, Department of Human Services.
- Power MG, for WHO and IMPACT. *Anti-counterfeit Technologies for the Protection of Medicines*.
- Ross H. (2015). *Understanding and Measuring Cigarette Tax Avoidance and Evasion: A Methodological Guide*. Prepared for the Economics of Tobacco Control Project, School of Economics, University of Cape Town, and Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago.
- Ross H, Husain MJ, Kostova D, Xu X, Edwards SM, Chaloupka FJ, Ahluwalia IB. (2015). Approaches for controlling illicit tobacco trade — nine countries and the European Union. *MMWR*, 64, 547-550.
- Royal Canadian Mounted Police. (2013). *2008 Contraband Tobacco Enforcement Strategy: Program-Lead Review Report*. Ottawa, Ontario, CA: Royal Canadian Mounted Police.
- Schroth KRJ. (2013, July). *High Taxes on Cigarettes in NYC: Impact and Consequences*. Presented at Combating the Illicit Tobacco Trade, Centers for Disease Control and Prevention, Atlanta GA.
- South Dakota Department of Revenue. (2012). Tribal. Pierre, SD: South Dakota Department of Revenue. Retrieved from [http://dor.sd.gov/Taxes/Business\\_Taxes/Publications/PDFs/Tribal1112indd.pdf](http://dor.sd.gov/Taxes/Business_Taxes/Publications/PDFs/Tribal1112indd.pdf).
- Substance Abuse and Mental Health Services Administration. (2015). *About the Synar Amendment and Program*. Retrieved from [www.samhsa.gov/synar/about](http://www.samhsa.gov/synar/about).
- Sweeting J, Johnson T, & Schwartz R. (2009). *Anti-Contraband Policy Measures: Evidence for Better Practice - Summary Report*. Toronto, Ontario, CA: The Ontario Tobacco Research Unit, Special Report Series.
- Tax Stamp News. (2014). Another well-timed KPMG study. *Tax Stamp News* 6 (5). Retrieved from <http://www.completeinspectionssystem.net/wp-content/uploads/2014/09/TSN.pdf>.
- Tayyan U. (2013, August). *Tobacco Banderol System Application in Turkey*. Presented at the 10th Asian Pacific Conference on Tobacco or Health, Makuhari, Chiba, Japan.
- Transparency International. (2011). *Corruption Perceptions Index 2011*. Berlin, DE: Transparency International.
- US Department of Health and Human Services. (2014). *The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention. Retrieved from <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf>.
- US Department of the Treasury, Tobacco Tax Bureau. (2010, February 4). *Report to Congress on Federal Tobacco Receipts Lost Due To Illicit Trade and Recommendations for Increased Enforcement*.
- Washington v. Confederated Tribes of Colville Indian Reservation, No. 78-630. United States Supreme Court (1980).
- Williams v. Lee, 358 U.S. 217, 220 (1959).
- Worcester v. Georgia, 31 U.S. 515 (1832).
- World Bank. (1999). *Curbing the Epidemic: Governments and the Economics of Tobacco Control*. Washington DC: The World Bank.
- World Health Organization. (2010). *Technical Manual on Tobacco Tax Administration*. Geneva, CH: World Health Organization.
- World Health Organization. (2012). *Protocol to Eliminate Illicit Trade in Tobacco Products*. Geneva, CH: World Health Organization.
- World Health Organization. (2014). *Secretariat Study of the Basic Requirements of the Tracking-and-Tracing Regime to be Established in Accordance with Article 8 of the Protocol to Eliminate Illicit Trade in Tobacco Products*. Geneva, CH: Secretariat, WHO Framework Convention on Tobacco Control, World Health Organization.



