WHO TECHNICAL MANUAL ON

Tobacco Tax Administration

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World Health Organization

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Foreword

STUDIES CONSISTENTLY SHOW that raising taxes on tobacco is the most cost-effective measure for reducing tobacco use. But now that we know that increasing the price of tobacco reduces the burden of the tobacco epidemic, what next? As a practical matter, how can tobacco taxes be raised? Countries, particularly low- and middle-income nations, are struggling for answers because of limited capacity and persistent fears that tax increases are difficult to implement and will lead to all kinds of disastrous consequences like an uncontrolled illicit market, increased unemployment, reduced revenue or an unfair burden on the poor.

Evidence shows that a well-administered tobacco tax leads to the desired result of reducing consumption and its crippling health consequences, and not producing the terrible economic outcomes often portrayed by the tobacco industry.

In fact, increased tax and prices for tobacco actually benefit governments by increasing revenues, which can then be used for state services, such as healthcare. This win-win result of reducing consumption and increasing revenues should be embraced during this period of economic hardship, when governments face increasing needs to find new ways to fund spending, particularly for health care. Tobacco taxation is a simple and effective means of increasing revenues without adverse effects on the economy.

This manual aims to provide readers, particularly policy-makers based in ministries of finance, with the relevant instruments for implementing an effective and efficient tax on tobacco products. It provides an overview of the different types of taxes applicable to tobacco, their strengths and weaknesses, and examines the different technical as well as political challenges faced in terms of their implementation. Finally, it provides a list of best practices that will help maximize the public health benefits of higher tobacco taxes while producing new tax revenues for at least the short- to medium-terms.

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Executive Summary

THIS TECHNICAL MANUAL aims to help governments maximize the benefits they can receive – with respect to public health but also public revenues – from higher tobacco taxes by identifying a set of best practices.

Governments have the potential to use tobacco taxes to manage consumption, raise revenue and promote public health. Of all tobacco-product taxes, excises are the most important for achieving the health objective of reduced tobacco consumption, since they are uniquely applied to tobacco products and raise the prices of these products relative to the prices of other goods and services. Both specific and ad valorem excises are instruments the government can use. A single-rate specific taxation would lead to relatively higher price increases and reduce the market share of cheap cigarettes. In addition to specific taxation, depending on the characteristics of the product consumed most widely and the structure of each industry, the government can also impose an ad valorem tax to adjust specification attributes (appeal and variety) to a desired level and raise the required revenue. The long-term goal should be greater reliance on specific taxation.

Raising tobacco taxes so that they account for at least 70 percent of retail prices would lead to significant price increases, induce many current users to quit, and deter numerous youth from taking up tobacco use, leading to large reductions in the death and disease caused by tobacco use. At the same time, such tax increases will generate significant increases in tobacco tax revenues. Taxing all tobacco products consistently reduces the potential for substitution among them.

Variability in tobacco excises is a reflection of differences in governments' objectives and the constraints they face. Higher revenue targets may be constrained by administrative issues. A well-designed tax system is not enough if the tax administration agency is lacking the technical and human capacity needed to implement and enforce it, as well as to reassess the system in the light of changing circumstances. Simplicity and transparency in tax structure and administration reduce administrative and compliance costs, as well as opportunities for tax avoidance and tax evasion, leading to higher and sustainable tax revenues.

Tax avoidance activities, by both consumers and producers, constrain government's ability to raise revenue and control consumption through taxation. Simplifying the tax structure will help reduce opportunities for tax avoidance as well as monitoring costs per unit of revenue raised. Tax evasion involves both illicit trade and illicit production; it may involve genuine products or counterfeit. High tax increases may provide financial incentives for smuggling, when enforcement and tax laws are weak, penalties are small, and it takes a long time to prosecute smugglers. Up-to-date technologies and a coordinated action including international collaboration, strengthened administration and enforcement with swift penalties are required.

Whether or not tax increases fall more heavily on low-income groups depends on how tobacco use among low- and high-income groups changes in response to these tax increases. Higher taxes on all tobacco products lead to a relatively large reduction in tobacco use among low-income groups and an increase in the overall share of tobacco-product taxes paid by higher-income groups. Thus, tobacco tax increases result in a progressive distribution of the associated health and economic benefits. Moreover, at least part of the extra revenues generated can be used to support public programmes targeted specifically at low-income groups.

In most countries, tobacco tax increases will have either no net impact on employment or, more likely, would lead to a small increase in the number of jobs. Any reductions in tobacco-dependent employment, following tobacco tax increases, would therefore be offset by increases in employment in other sectors. Crop-diversification programmes that support farmers and programmes retraining those involved in tobacco product manufacturing could be financed by a small portion of the extra revenues generated from increases in tobacco-product taxes.

Governments need to establish a mechanism for adjusting specific taxes to keep pace with inflation and increases in real income. The latter is more important in low- and lower-middle-income countries because the evidence suggests that in these countries tobacco consumption increases as income rises.

In most countries, tobacco-product taxes constitute a low share of prices of tobacco products and/or little weight is given to tobacco product prices in computing price indices. Thus, in general, tobacco tax increases will have little impact on inflation.

Increasing tobacco-product taxes increases tax revenues over the short to medium term, because tobacco-product taxes account for a fraction of tobacco-product prices and the percentage reduction in tobacco use resulting from a price increase is smaller than the percentage increase in price in most countries. A growing number of governments have used the revenues generated by tobacco excise tax increases to fund a variety of tobacco control activities and other health promotion efforts, while others have used these revenues to finance parts of their health-care systems.

Along these lines, the final chapter summarizes providing a set of "best practices" for tobacco taxation and including suggestions for how governments will best approach them.

Acronyms

AFR	World Health Organization African Region
AMR	World Health Organization Region of the Americas
BI	Bloomberg Global Initiative to Reduce Tobacco Use
CIF	Cost, Insurance and Freight
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
EC	European Commission
EMR	World Health Organization Eastern Mediterranean Region
EUR	World Health Organization European Region
EU	European Union
FCA	Framework Convention Alliance
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GST	General Sales Tax
HRT	Hand rolling tobacco
IARC	International Agency for Research on Cancer
JTI	Japan Tobacco International
MoF	Ministry of Finance
MoH	Ministry of Health
MPPC	Most popular price category
NCI	United States National Cancer Institute
RYO	Roll-your-own tobacco
SEAR	World Health Organization South-East Asia Region
TMA	Tobacco Merchants Association
USDHHS	United States Department of Health and Human Services
VAT	Value Added Tax
WAP	Weighted Average Price
WCO	World Customs Organization
WHO FCTC	World Health Organization Framework Convention on Tobacco Control
WHO GTCR	World Health Organization Report on the Global Tobacco Epidemic
WPR	World Health Organization Western Pacific Region
WTO	World Trade Organization

CHAPTER I

Introduction

"*Sugar, rum, and* ***tobacco, are commodities which are no where necessaries of life, which are become objects of almost universal consumption, and which are therefore extremely proper subjects of taxation.*** *..... In the mean time the people might be relieved from some of the most burdensome taxes; from those which are imposed either upon the necessaries of life, or upon the materials of manufacture. The labouring poor would thus be enabled to live better, to work cheaper, and to send their goods cheaper to market. The cheapness of their goods would increase the demand for them, and consequently for the labour of those who produced them. This increase in the demand for labour, would both increase the numbers and improve the circumstances of the labouring poor. Their consumption would increase, and together with it the revenue arising from all those articles of their consumption upon which the taxes might be allowed to remain.*"

ADAM SMITH

An Inquiry into the Nature and Causes of The Wealth of Nations, Book V, Chapter III, pages 474-476, 1776; edited by Edwin Canaan, 1976 (emphasis added).

TOBACCO USE is the single largest cause of preventable death globally, killing more than five million people each year. Tobacco use also creates considerable economic costs, from greater spending on health care to treat the diseases it brings on in users and those exposed to tobacco smoke to the lost productivity resulting from the premature deaths it causes. The primary objective of the World Health Organization is to protect public health; given the death and disease it causes, reducing tobacco use is a priority focus of WHO's activities. These efforts include the effective implementation of the WHO Framework Convention on Tobacco Control (WHO FCTC), with a particular emphasis on the strategies contained in the MPOWER measures introduced by WHO to assist in the country-level implementation of tobacco demand reduction measures contained in the WHO FCTC: Monitoring tobacco use and prevention policies; Protecting people from tobacco smoke; Offering help to quit tobacco use; Warning about the dangers of tobacco; Enforcing bans on tobacco advertising, promotion and sponsorship; and Raising taxes on tobacco products.

Of all of these interventions, a significant increase in tobacco product taxes and prices has been demonstrated to be the single most effective and cost-effective intervention for reducing tobacco use, particularly among the young and the poor. At the same time, because of the inelasticity of demand for tobacco products in most countries and the low share of tax in price in many, significant increases in tobacco taxes generate significant increases in the revenues generated by these taxes.

This technical manual aims to help governments achieve both objectives by identifying a set of 'best practices' for tobacco taxation. It documents governments' existing approaches to tobacco taxation, discusses barriers to using tobacco taxes to achieve health and revenue objectives, and provides case studies of effective tobacco tax administration. This manual is intended to be useful to tax administrators at the Ministry of Finance level by making them aware of the practices used and challenges faced by other countries. It will also be useful to officials in a country's Ministry of Health or similar organizations by providing them with a more thorough understanding of key issues in tax structure and administration.

Government Objectives

Governments around the world have followed Adam Smith's advice above, with nearly every country in the world imposing taxes of various types and sizes on the wide variety of tobacco products available. Many of these taxes have been in place for decades, if not centuries, with periodic changes to their magnitude, structure and administration. The variety of taxes applied to tobacco products include excises (both specific and *ad valorem*), customs duties, value added taxes, general sales or consumption taxes, and special levies that fund particular programmes. The labels given to these taxes may vary from country to country, but the forms they take have many similarities.

Of the various types of taxes applied to tobacco products, excise taxes are of the most importance when considering health objectives. These taxes will raise the price of tobacco products relative to the prices of other goods and services, unlike taxes that apply to a wide variety of goods and services, such as value added taxes and general consumption taxes. Moreover, relative to other products also subject to some form of excise, it is the excess over the average excise tax rate that increases the effectiveness of the tobacco excise.

Governments have used tobacco taxes in efforts to achieve multiple, at times competing goals. Historically, revenue generation has been the primary aim of most, if not all, governments that tax tobacco products, and many governments today raise taxes when they need additional revenues. Tobacco products are generally good candidates for taxation, given that they are typically produced by a small number of manufacturers, have few ready substitutes, and have relatively inelastic demand, at least in the short run. As such, they tend to satisfy the so-called "Ramsey Rule" for economically efficient consumption taxes (Ramsey, 1927). That is, because of the relative inelasticity of demand, they can generate considerable revenues while creating fewer distortions in the market than would result from taxes on goods and services with more elastic demand. Of course, there are many other goods and services with equal or greater levels of inelastic demand, for which the same would be true.

Some governments have pursued other goals (in addition to revenue generation) through the types of tobacco taxes they apply. Some have used high customs duties to protect domestic tobacco growers and tobacco manufacturers from outside competitors. Others have done the same by applying excise taxes to tobacco products that vary based on the source or type of tobacco contained in the product, the price of the product (where foreign brands are expensive relative to those produced domestically), or other product characteristics. In other cases,

governments have adopted what they consider to be a "pro-poor" policy that keeps taxes low on relatively inexpensive products or brands while more heavily taxing more expensive products or brands, in order to keep retail prices low for the products/brands most widely used by the poor.

Over the past half-century, as evidence on the health consequences of tobacco use has accumulated, governments have begun to use tobacco taxes as a way to promote public health by reducing tobacco use and the death and disease it causes. Growing research evidence that demonstrates that higher taxes, by increasing prices, lead to reductions in tobacco use, with relatively larger impact on vulnerable populations – youth and young adults, the poor, and pregnant women – has led many governments to adopt and increase tobacco taxes with the stated intent of reducing tobacco use (Chaloupka et al., 2000; Ross and Chaloupka, 2006).

Similarly, as the evidence on the health consequences of tobacco use has grown, market failures in tobacco product markets have become increasingly apparent, strengthening the economic rationale for government intervention that includes increased tobacco taxes (Jha and Chaloupka, 2000). There are clear negative externalities from tobacco use, given the well documented health consequences of exposure to environmental tobacco smoke (USDHHS, 2006). To the extent that health care is publicly funded, there are costs imposed on non-smokers resulting from smokers' increased use of health care to treat diseases caused by smoking.

Information failures exist in many countries regarding these health consequences, with the full risks from tobacco use poorly understood by a significant portion of the population. These failures are exacerbated by the increasingly early ages at which tobacco use is initiated and by the addictiveness of tobacco use, something few new users in these countries comprehend. The 'internalities' that result from individuals' self-control failures that lead to greater tobacco use than desired are yet another market failure that strengthens the case for government intervention in tobacco markets (Gruber and Koszegi, 2008). While higher tobacco taxes may be a blunt policy for curbing tobacco use, they are highly effective, particularly among young people and the poor for whom these market failures are likely most important.

Given the evidence on the effectiveness of higher tobacco product prices in reducing tobacco use, higher tobacco taxes are a central element of the WHO FCTC. Article 6 (Annex Figure 1), calls for Parties to the treaty to use tax and price policies to reduce tobacco use, while Article 15 (Annex Figure 2) calls for the adoption and implementation of measures aimed at eliminating the illicit trade in tobacco products that can undermine the effectiveness of increased tobacco taxes.

Tobacco Taxes and Tobacco Use

Well over one hundred studies have examined the impact of tobacco product taxes and prices on overall tobacco use[1]. Until recently, nearly all of these studies came from high-income countries including the United States, Canada, the United Kingdom, Australia, and several others. These studies consistently find that increases in taxes and prices on tobacco products lead to reductions in tobacco use. Most studies have focused on cigarette smoking, given that cigarettes account for the nearly all tobacco use in high-income countries. While these studies have produced a wide range of estimates of the magnitude of the effects of price on overall cigarette consumption, the vast majority of these studies estimate price elasticities in the range from -0.25 to -0.5, with most of these clustered around -0.4 (this number means that if price was increased by 10% consumption would go down by 4%). Several of these studies have modelled the addictive nature of tobacco use, finding that demand is more responsive to price in the long run than it is in the short run.

Over the past decade, a growing number of studies have examined the impact of taxes and prices on tobacco use in low- and middle-income countries. These studies have estimated a wide range of price elasticities with most, but not all, indicating that demand for tobacco products is more responsive to price in low and middle-income countries than it is in high income countries. For example, Hu and Mao (2002) estimate that the price elasticity of cigarette demand in China ranges from -0.54 to -0.64, while John (2008) estimates price elasticities in the range from -0.86 to -0.92 for bidis and -0.18 to -0.41 for cigarettes in India. As in studies for high-income countries, studies from low and middle-income countries that account for the addictive nature of tobacco use find that demand responds more to price in the long run. For example, Aloui (2003) estimates short run price elasticities for tobacco use in Morocco in the range from -0.51 to -0.73, and estimates long run elasticities that range from -1.36 to -1.54.

Findings from studies based on individual-level survey data on adult tobacco use indicate that taxes and prices influence both tobacco use decisions (prevalence) and the frequency and amount of tobacco consumption among smokers (conditional demand). In general, estimates from high-income countries suggest that about half of the impact of price on tobacco use results from its effect on prevalence. Given that relatively little initiation occurs during adulthood, these

1 See Chaloupka et al., 2000 and Ross and Chaloupka, 2006, and Annex Table 4 for reviews of the research discussed in this section.

changes largely result from cessation among adult users. This is confirmed by a small number of studies finding that increases in prices lead a number of current users to try to quit, with some successful in doing so in the long run.

Studies using survey data from low and middle-income countries similarly find that price affects prevalence, although the relative impact on prevalence and consumption varies considerably across studies/countries. For example, Adioetomo et al. (2005) find no impact of price on the prevalence of smoking in Indonesia, while estimating an elasticity for conditional cigarette demand of -0.61. In contrast, Kyaing (2003) estimates a total price elasticity of -1.62 with a prevalence price elasticity of -1.28 and a conditional demand elasticity of -0.34 in Myanmar.

Several studies based on survey data have examined the differential responses of various population subgroups to changes in the prices for tobacco products, including those based on age, gender, income, education, race/ethnicity, and location (urban vs. rural). Findings for gender, race/ethnicity and location vary across countries, while consistent patterns are more evident with respect to age and socioeconomic (SES) status (as measured by income and/or education). Studies looking at tobacco use among adolescents and young adults find that young people are two to three times more responsive to tax and price than are older persons (Chaloupka, forthcoming). Studies that examine the uptake of tobacco use find that higher taxes and prices are particularly effective in keeping young people from moving beyond experimentation with tobacco use, preventing them from becoming regular and, eventually, addicted users. Similarly, as predicted by economic theory, lower SES populations are more responsive to price than are higher SES populations. For example, Sayginsoy et al. (2002) estimate cigarette demand elasticities of -1.33, -1.00 and -0.52 for low, middle and high income populations in Bulgaria (total price elasticity of -0.8). Similarly, van Walbeek (2002) estimates elasticities by income quartile ranging from -1.39 for the lowest quartile to -0.81 for the highest quartile in South Africa.

Finally, several studies examine the potential for substitution among tobacco products in response to changes in the relative prices of these products. In general, these studies find that part of the reduction in the use of one tobacco product in response to an increase in its price will be offset by increased use of other products if the prices of these products are not also increased. For example, Laxminarayan and Deolalikar (2004) find that changes in relative prices for cigarettes and rustic tobacco in Viet Nam lead to substitution between the two, particularly for substitution from cigarettes to rustic tobacco in response to an increase in the relative price of cigarettes. This potential for substitution highlights the importance of

increasing taxes and prices for all tobacco products, if the public health benefits of higher prices are one of the motives for tobacco tax increases.

To summarize, a large and growing literature clearly demonstrates that the overall demand for tobacco products is significantly affected by changes in tobacco product taxes and prices. These studies demonstrate that price affects all aspects of tobacco consumption, with higher prices preventing initiation among potential users, inducing cessation among current users, and reducing the frequency of consumption and amount consumed by continuing users. Consistent with economic theory, demand is generally found to be more responsive to price in low and middle income countries than in high income countries and, within a given country, use among younger and/or lower SES populations responds more to price than does use among older and/or higher SES persons. As predicted by economic theories of addiction, the impact of a permanent increase in price will be larger in the long run than in the short run. Finally, several studies show that changes in the relative prices of tobacco products will lead to some substitution among products, partially offsetting the impact on overall tobacco use of an increase in the price of one product.

Overview of the Manual

This technical manual aims to help governments maximize the benefits that they can receive from higher tobacco taxes by identifying a set of best practices for tobacco taxation. This is one of several available or forthcoming products that focus on tobacco taxation, including: the forthcoming monograph on the economics of tobacco and tobacco control being jointly produced by WHO and the US National Cancer Institute (NCI); the handbook on the effectiveness of tobacco tax and price policies forthcoming in the tobacco control handbook series produced by the International Agency for Research on Cancer (IARC); and the series of reports on tobacco taxation produced by the Bloomberg Global Initiative to Reduce Tobacco Use (BI).

These products differ in their breadth and depth, as well as their target audiences. The IARC handbook, for example, will provide an in-depth review of the global research evidence on the impact of tobacco taxation and price-related policies on tobacco use, while the NCI/WHO monograph provides a broader review of the global evidence on the public health and economic impact of a range of tobacco control policies and other interventions, with an emphasis on impact in low and middle-income countries. In contrast, most of the BI reports are focused on country-specific evidence and on estimating the potential impact of increased tobacco taxes on tobacco use, preventable deaths, and revenues in a given country. This technical manual aims to provide more practical guidance on tax structure and tax administration issues for tax administrators and other government officials interested in increasing tobacco product taxes. Taken together, these and other materials provide a complementary and comprehensive picture of the economics of tobacco, tobacco taxation, and tobacco control.

Chapter 2 of this technical manual begins by providing an overview of tobacco taxes globally, highlighting the different types of taxes that governments apply to tobacco products, describing the alternative tax structures used in various countries, and reviewing the theoretical and limited empirical evidence on the impact of tax structure on tobacco product prices, tax revenues, and tobacco use.

Chapter 3 describes issues in tax administration, given that strong tax administration is necessary for tobacco taxes to be effective in protecting health and generating revenues. The chapter begins with a discussion of the need for strong technical capacity among tax administrators, including an understanding of the impact of alternative tobacco taxes on tobacco product prices, tobacco use, and revenues, as well as an understanding of other key determinants of tobacco demand. It goes on to describe the challenges associated with effective tobacco tax administration, from the monitoring of tobacco production and collection of taxes to approaches to limiting tax avoidance and evasion.

Chapter 4 focuses on the political economy of tobacco taxation, highlighting the obstacles and challenges that governments face when they consider adopting and implementing higher tobacco taxes. The arguments used by opponents of higher tobacco taxes are reviewed, including: questions about the potential and sustainability of tobacco tax revenues; the macroeconomic impact of higher tobacco taxes, particularly their impact on employment and inflation; possible harmful effects of higher tobacco taxes on the poor; and the possibility of increased illicit trade in tobacco products in response to higher taxes. The chapter also provides examples of the tobacco industry's role in negotiating tobacco tax rates in some countries, as well as manufacturers' responses to tax increases. Finally, this chapter also describes the dedication or earmarking of tobacco tax revenues for various programmes, generally health focused ones, in a growing number of countries.

Given the experiences and issues described in these chapters, the final chapter provides a set of "best practices" for tobacco taxation – practices that will help maximize the public health benefits of higher tobacco taxes while at the same time producing new tax revenues for at least the short to medium term. In addition, given the gap in many countries between current practices and identified best practices, this chapter includes suggestions for how governments using various approaches can best transition from their current approach to these best practices.

However, there is relatively limited empirical evidence on many of the topics covered within. As governments begin to make the transition from their current practices to "best practices", much will be learned from their experiences.

CHAPTER II

Tobacco tax levels and structure: A theoretical and empirical overview

THIS CHAPTER provides an overview of the different types of excise taxes on tobacco products, and their public health and revenue implications. Choosing an appropriate tobacco tax structure for a country is paramount to a successful strategy for promoting both public health and public finance, by reducing the consumption of tobacco products while raising government revenues. Both political and economic feasibilities determine a government's decisions on the design or reform of the tobacco tax system.

While import duties and sales taxes such as the Value Added Tax (VAT) may also apply on tobacco products, excise taxes constitute a greater share of tobacco product prices in most countries, produce more government revenues, and have a greater public health impact. Hence, this chapter focuses mainly on excise taxes, including taxes uniquely applied to tobacco products but that are called by other names. Furthermore, this manual focuses on the application of excises on cigarettes and provides limited information on excise application for the other tobacco products (e.g. roll-your own, chewing tobacco, snuff, waterpipes) due to limited available data or no (or low) excise levies on these products.

Section 2.1 of this chapter describes the different types of taxes levied on tobacco products, while section 2.2 provides an overview of tax rates and tax share

in prices by income group, region and country level. Section 2.3 discusses the design and implementation of taxes on cigarettes. Based on the existing theoretical and empirical evidence, section 2.4 addresses the issue of which type of tax is more appropriate for a given objective and section 2.5 looks at the choice between implementing a uniform and a differential tax rate, followed by conclusions in section 2.6.

2.1 Types of taxes levied on tobacco products

Excises and VAT are the most common forms of domestic consumption taxation levied on tobacco products. Based on available data, about 90 percent of countries (163 out of 182) levy excises on cigarettes. Exceptions apply in the Gulf Cooperation Council (GCC) countries (including Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE), some Pacific island countries (e.g., Cook Islands, Marshall Islands, Nauru, Niue, Palau and Kiribati), some Caribbean island countries (including Antigua & Barbuda, Grenada and St. Lucia), and Afghanistan, Benin, Maldives, and Sao Tome & Principe. Nearly as many countries – 152 of the 182 countries – levy a VAT (and sales tax) on cigarettes (WHO GTCR, 2009).

- **Excises:** There are two types of excise taxes – specific and ad valorem. A specific excise tax is a monetary value per quantity (e.g. pack, weight, carton, piece) of tobacco products. An ad valorem excise tax is levied as a percentage of the value of the tobacco products. We will look at both of these in more detail in the next section.

- **Value Added Taxes:** VAT is a widely adopted consumption tax. In general, it is applied as a single rate and on a broad range of goods and services. In principle, VAT is a general tax on consumption of goods and services, leaving relative prices unaffected, and as such has great practical appeal for revenue generation. It minimizes the amount of detailed information needed for tax administration as only the total value of sales needs to be recorded. Tax authorities have no need to be concerned with the nature of the goods and services traded.

  VAT rates vary by countries. Currently, the share of VAT in retail price of cigarettes varies between 2 and 10 percent in 30 countries, 10 and 15 percent in 57 countries, and 15 and 20 percent in 65 countries. Only 30 countries do not levy any VAT tax on tobacco products (WHO GTCR, 2009).

- **Other taxes:** Consumption taxes are named differently in different countries and some act as excises despite their names (for example, the stamp duty in Brazil and the General Sales Tax (GST) in Egypt). Most other taxes are additional taxes on tobacco products to finance various programmes through earmarking.

- **Import duties:** Almost all countries levy a tariff on imported cigarettes.[2] An import duty is a tax on a selected commodity imported in a country and destined for domestic consumption (i.e., the goods are not in transit to another country). In general, import duties are collected from the importer at the point of entry into the country.

  Import duties also vary among countries. Countries impose high import duties either to protect their domestic industry or to generate government revenue. Some examples of countries with relatively high import duties are Nigeria (35%), Guyana (100%), Sri Lanka (SLR1,370/kg), Zimbabwe (60% US$5/50 packs), Egypt (83%), Jordan (75%), Mexico (67%), and Honduras (55%) (TMA, 2009). Countries with no substantial cigarette production or no excise taxes have a tendency to levy higher import duties on cigarettes for revenue purposes. The Gulf Council Countries are good examples of this; Bahrain, Kuwait, Qatar, Saudi Arabia and the United Arab Emirates (UAE) each impose a 100 percent duty based on importers' declared CIF (*Cost, Insurance, Freight*) value.

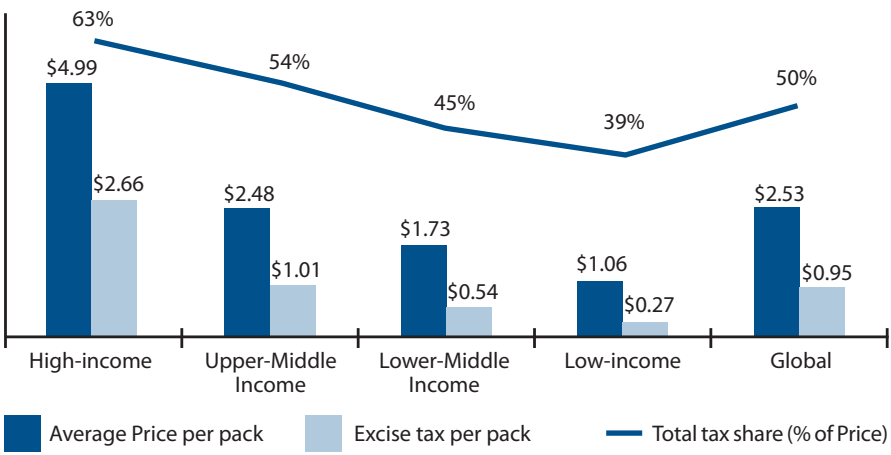
  In recent years, given bilateral, regional and global trade agreements, import duty rates have been reduced dramatically by many countries. Import duties discriminate against imported products and free trade agreements usually require participating countries to gradually phase them out. As import duties are phased out, the government loses the revenues they generated. Replacing import duties with excise taxes or increasing excise taxes can compensate for these revenue losses. Brunei used to levy a 200% CIF tariff on cigarette imports, but recently replaced its import duties with excise taxes. As it does not manufacture any cigarettes, there is no real effect on the economy, only a need for an administration adjustment to importers. The change was part of the government's commitment to World Trade Organization (WTO) and other international and regional trade agreements.

2 There are a couple of exceptions, for example Singapore. Also, many countries are members of a number of regional or bilateral trade agreements under which tobacco products are subject to different or no import duties for member countries.

2.2 Overview of tobacco prices and taxes at global and regional level

The prices of cigarettes that consumers face and the total tax share in consumers' prices vary considerably across countries grouped by income and regions (Figure 1 and 2, respectively). The highest average price per pack of cigarettes in US$ declines by income group, with the highest average price and tax share in the group of high income countries. On average, at the global level, total taxes on cigarettes account for about 50 percent of the average retail price for cigarettes, with the average price being US$2.53. The average price and tax share in the lower-middle income group (US$1.73/pack and 45% respectively) and in the low-income countries (US$1.06/pack and 39% respectively) are below the global average.

Figure 1. Simple Average Price of the Most Sold Brand, Excise Tax per pack, and Total Tax Share by Income Group, 2008.

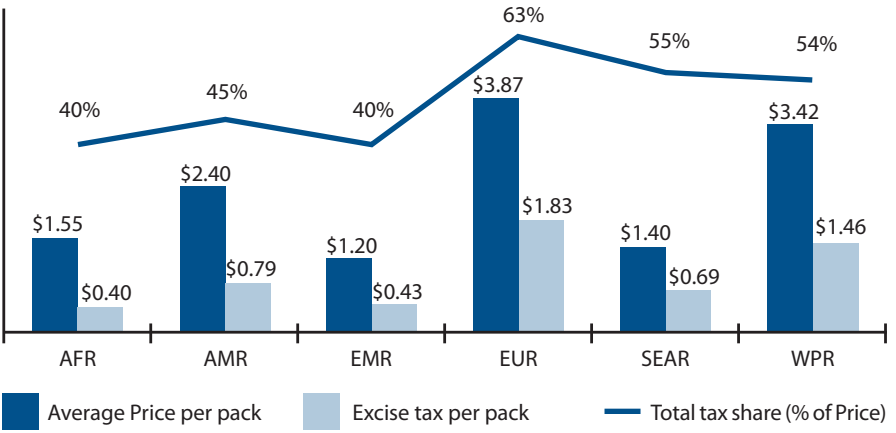


Source: WHO GTCR, 2009

Across WHO regions (Figure 2), the European Region (EUR) has the highest average retail price and total tax share in average retail price (US$3.87/pack and 63% respectively), mainly because of the European Union countries. The Eastern Mediterranean Region (EMR) has the lowest average consumer price and tax share, with African Region (AFR) second lowest. Regional comparison displays two interesting results. First, the South-East Asia Region (SEAR) has the second highest tax share in consumer prices but the second lowest average consumer price, given relatively low manufacturers' prices in the region.

Second, the AFR has a relatively higher average consumer price, but the share of tax in consumer price is one of the lowest among the regions.

Figure 2. Simple Average Price of the Most Sold Brand , Excise Tax per pack, and Total Tax Share by Region, 2008.



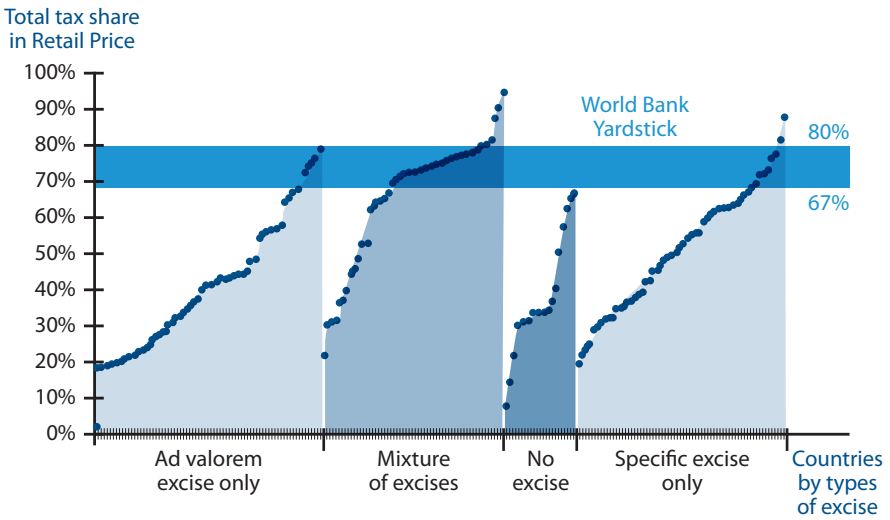
Source: WHO GTCR 2009

Based on most popular brand categories, 47 out of 182 countries meet the World Bank's 2/3rd yardstick (67% of price as total tax).[3] And among those 47 countries, only 8 countries meet or go over the 4/5th yardstick (Poland, Slovakia, Bulgaria, Cuba, Mauritius, France, UK, and the Czech Republic). Among those 8 countries, Cuba (87%) and Mauritius (68%) rely on a uniform specific excise only, and three countries (Slovakia, UK, and the Czech Republic) levy a mixture of both excises but rely heavily on the specific component, compared to the ad valorem one, as a share in the retail price. Among the other 39 countries, more than half (23 countries) rely on an ad valorem excise or impose a mixture of both excises but rely heavily on the ad valorem component.

3 In 1999, the World Bank announced a yardstick after observing that the tax accounts for two-thirds to four-fifths of the retail price of cigarettes in countries with comprehensive tobacco control policies.

Figure 3 below groups countries by tax structure and shows that most of them are still below the World Bank's 1999 yardstick.

Figure 3. Total Tax Share in Retail Price in countries by types of excises in 2008; The World Bank Tax Yardstick and Country Status, 2008.



47 countries meet the 67% WB minimum yardstick
(30 countries with mixture of excises, 7 with Ad Valorem excise & 10 with Specific excise)

Source: Authors' calculations using WHO GTCR 2009 data

Turning to other tobacco products, bidis are hand-rolled tobacco products commonly consumed in countries in South-East Asia, including Bangladesh, Bhutan, India, Maldives, Nepal, Sri Lanka and Timor-Leste.[4] Bidis are usually excluded from tobacco excises, with the exceptions of India, Bangladesh and Nepal. Bidis account for around 85% of total smoking tobacco consumption in India, with the remainder consisting of cigarette consumption. The bidi industry has a large number of small scale producers, with over 98% of bidis being handmade (Euromonitor, 2007). None of the over 300 brands of bidis command even a 5% market share within India (Goodchild, forthcoming; Sunley, 2008). Historically, excises on bidis have been close to zero. The most popular cigarette brand in India in 2008 was Gold Flake, on which a specific excise of INR 1,759

4 Bidis are the Indian version of cigarettes and are made by rolling a dried, rectangular piece of temburni leaf with 0.15-0.25 gram of sun-dried, flaked tobacco into a conical shape and securing the roll with a thread; the product is then available for smoking.

per 1000 cigarettes was levied. In contrast, the excise rate on machine-made bidis was INR 26 per 1000 sticks, while the excise on handmade ones was INR 14 per 1000 pieces. Similarly, in Bangladesh bidis account for 75% of total sticks smoked and are produced by small companies; they are subject to a 20 percent ad valorem tax levied on the pre-tax retail price (Barkat et al, forthcoming). In Nepal, the excise rate on the most popular cigarettes was NPR 415 per 1000 pieces in 2008, but that on bidis was NPR 50 per 1000 pieces.

Water pipes are another form of smoking tobacco widely used in the Eastern Mediterranean region, including Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Oman, Pakistan, Qatar, Saudi Arabia, Syrian Arab, Tunisia, United Arab Emirates, West Bank and Gaza Strip, and Yemen. Little information is available with regards to excises on tobacco products for water pipes, but for example Lebanon, Libya, Syria and Turkey levy an ad valorem excise while Israel levies a mix of excises.[5] The tax rates also vary widely, from 2% of the producer price in Libya, to 15% in Syria and 108% in Lebanon, and 58% of retail price in Turkey (WHO GTCR, 2009).

Taxation of smokeless tobacco products has received comparatively little attention in most countries. However, this is becoming an important policy issue because of the emergence of new smokeless tobacco products in tobacco product markets. These new smokeless products include a variety of dissolvable tobacco products and snus, in addition to the more traditional moist snuff and chewing tobacco products produced by a number of tobacco manufacturers.[6] The issue of how to tax these products remains an open question for further study.

In the United States, for example, the excises imposed on moist snuff tobacco products vary considerably across states. Taxes range from no tax in Pennsylvania to 90% of wholesale price in Massachusetts and $1.49 per ounce in Vermont. The lowest tax rates on these smokeless tobacco products appear to be in the southern US states (where most tobacco is grown). Although the US federal government taxes moist smokeless tobacco based on weight, which is essentially a tax on quantity, most state governments impose ad valorem taxes based on wholesale or manufacturer prices; only 9 out of 51 states impose specific excises. This is interesting as, with respect to taxing cigarettes, each state imposes a specific excise per pack. The weight based taxes, however, lead to considerable differences in the taxes on various products, as some of the new products are much lighter

5 Turkey levies 58 percent ad valorem on retail price per package not exceeding 500gram of waterpipe tobacco or 0.02TL/gram specific excise, whichever has the higher value.
6 An introduction to these emerging smokeless tobacco products can be found at http://tobaccoproducts.org/index.php/Main_Page#New_Smokeless_Products.

than more traditional products. Application of excises on moist snuff also differs across countries. Norway, for example, levies a specific excise of NKr0.68 per 100 gram of moist snuff (ERC, 2008), and Turkey imposes a minimum specific excise floor while imposing the same ad valorem rate of 58% as on cigarettes (MoF Turkey, 2009).

2.3 Design and implementation of cigarette taxation

The design and implementation of cigarettes excises vary greatly by countries. The base on which taxes are levied can take many forms.

When the tax is uniform, that is, the same rate applies to all cigarettes, the tax base can be:

- **Quantity:** The most common base for a specific excise is a pack of 20 cigarettes or a tax per 1,000 cigarettes, but there are exceptions such as a pack of 25 cigarettes (e.g. Australia), a carton, 5 packs of 25 cigarettes (e.g. Canada), a stick (e.g. Indonesia), a meter (e.g. Nepal) or the weight (e.g. New Zealand[7]).

- **Price**: The ad valorem excise may be applied based on the manufacturer's price (e.g. China) or the retail price (e.g. Bangladesh, Turkey, Russia, Ukraine, EU). In Indonesia, up until 2009, the ad valorem excise was based on the banderol price[8], which is based not only on firm production costs but also on a modification administered by the Ministry of Finance.

When the tax rate is not uniform, the tax is usually based on :

- **Price category and other brand characteristics (e.g. retail or manufacturer's price level, sales volume, length, filter, packaging, tobacco origin):** In some countries, the specific excise varies by tiers, typically depending on the characteristics of brands. For example, in Egypt the specific excises vary by the ex-factory price of cigarettes, ranging from EGP 1.08 per pack for low-priced brands to EGP 3.25 per pack for high-priced brands in 2009. India, Nepal and Sri Lanka impose different specific tax rates depending on the length of cigarettes. Kazakhstan, Russia and Ukraine apply different specific excises for filtered and non-filtered cigarettes. In Turkey the specific excise system was originally multi-tiered, based on the value of the cigarettes, was later based

7 This applies to cigarettes exceeding in weight 0.8 kg.
8 The banderol price is a price set by the government for each brand sold in Indonesia. It is calculated based on the cost of production, producer profit as well as distributors', agents' and retailers' margins

on the tobacco origin (oriental versus non- oriental leaf), and, in 2009, became a uniform ad valorem tax at a rate of 58% of the retail price with a minimum specific excise of 2.05 TRY per pack (Yurekli et al., 2010).

Some countries levy tiered or differential ad valorem excises based on cigarette characteristics, however this is less frequent compared to specific excises. A total of 6 countries apply differential ad valorem rates on cigarettes. Different tiers mainly depend upon the retail price but can also depend on the producer price (e.g. China) or sales volume (e.g. Myanmar).

According to the latest data available, only 19 out of 182 countries do not levy any excises on cigarettes (WHO GTCR, 2009).[9] Some countries apply a uniform tax rate, either specific or ad valorem, on all types of cigarettes, while others prefer to impose differential tax rates depending on the characteristics of the cigarettes. As Table 1 shows, a large number of countries (60 out of 182) rely on ad valorem excises only, while 55 countries impose only a specific excise. About one quarter of countries (48 out of 182) levy both specific and ad valorem excises.

Table 1. Excise system on cigarettes.

	Number of countries
Total covered	182
Specific excise only	55
Ad valorem excise only	60
Mixture of both excises	48
No Excise	19

Source: Authors' calculations using WHO GTCR 2009 data

Annex Tables 1 and 2 provide more detailed information on 155 countries: 32 of them levy differential tax rates based on prices, production, packaging, type of product, product characteristics or source of materials used (TMA, 2009).

The choice of excise(s) applied by countries varies by income group and by region. In general, low-income countries are more likely to lean towards an ad valorem excise: 28 out of 40 low-income countries that levy an excise tax on cigarettes rely solely on ad valorem excises compared to 10 that apply only a specific tax, while two use a combination of the two. In contrast, high-income countries are less likely

9 Table 1, in the Annex, provides detailed information on the type of excise tax imposed by different countries.

to lean towards an ad valorem excise: only 2 of 38 high-income countries that apply an excise tax to cigarettes rely on an ad valorem tax, while 11 rely on a specific tax and 25 – mostly European Union countries – use a mixture of both excises. For middle income countries, the trend is less clear, where 30 countries out of 85 rely only on ad valorem, while 34 rely on specific excises only and 21 have a mixture of both.

Table 2. The types of cigarette excise taxes applied by income group and WHO region.

	Excise System on Cigarettes				
Income Group	Only specific	Only ad valorem	Both specific and ad valorem	No Excise	Total countries *
High	11	2	25	7	45
Upper Middle	16	11	9	6	42
Lower Middle	18	19	12	3	52
Low	10	28	2	3	43
By Region					
AFR	14	29	1	2	46
AMR	13	16	2	3	34
EMR	1	7	5	7	20
EUR	10	3	36	0	49
SEAR	3	2	2	1	8
WPR	14	3	2	6	25
All Countries	55	60	48	19	182

* Countries for which data are available
Source: Authors' calculations using WHO GTCR 2009 data

Geographically, most countries in WPR (74% or 14 out of 19) rely solely on specific excises, while a large number of countries in Africa (66% or 29 out of 44) rely solely on ad valorem taxation. In AMR, about half of countries (52% or 16 out of 31) rely on ad valorem excises, nearly half (42%, 13 out of 31) rely on specific excises, and only 2 countries (El Salvador and Dominican Republic) impose both excises. Among 48 countries that impose both types of excise, the share of the total excise tax accounted for by the ad valorem component is higher in more countries (28 out of 48); all low and lower-middle income countries

except Congo, the Dominican Republic, Ukraine and Pakistan, lean towards ad valorem taxation.[10]

Annex Table 3 provides more detailed information by country level. Most high-income countries impose a mixture of both specific and ad valorem taxation. Many of these are the EU Member states; under current rules, EU Member States' cigarette excises must include both a specific and an ad valorem component. Excise duties must account for at least 57% of the retail selling price, inclusive of all taxes, and be at least €64 per 1000 cigarettes for the cigarettes belonging to the most popular price category (MPPC). The specific component of excise duty must not be less than 5% or more than 55% of the total tax share in final price of cigarettes in the MPPC. Member States may levy a minimum excise tax that may not be more than 100% of the total excise on the MPPC. However, there are also a number of derogations and transitional periods. Currently, 24 out of the 27 Member States impose a minimum tax floor, most of them applying a high or average ad valorem rate. In all but three Member States excises account for at least 57% of retail price in MPPC while all Member States satisfy the minimum tax of €64/1000 cigarettes. (See Annex Figures 3 through 5).

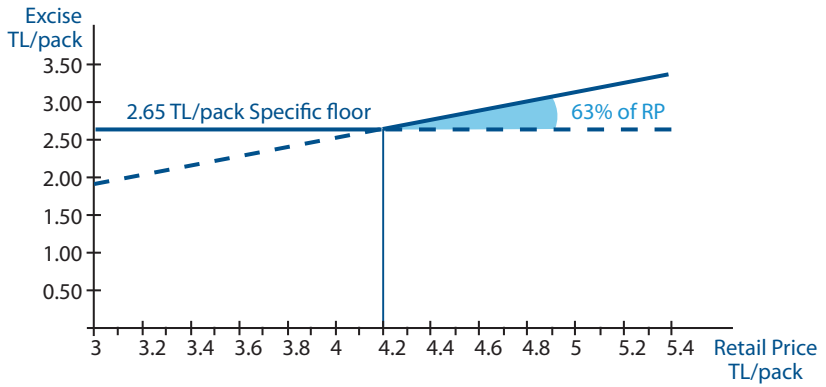
In November 2008, the Council reached a political agreement on a draft directive aiming at updating EU rules so that a higher level of public health is ensured. The concept of the MPPC will be replaced by a weighted average price (WAP) as a reference point for EU minimum requirements. This is appropriate as nowadays markets are more dynamic, with several popular brands and regular changes in cigarette prices. Replacing the MPPC with the WAP of all cigarettes for determining the tax base ensures transparency and a level playing field for manufacturers. Moreover, in an effort to emphasize the health objectives of tobacco excises, the monetary minimum duty will apply to all cigarettes and will be increased gradually over the next five years to €90 on all cigarettes, irrespective of the WAP, with an overall excise duty on cigarettes of at least 60% of the WAP.

This increase in the minimum duties will decrease the gap between the cheapest and most expensive cigarettes in the EU. As from 1 January 2011, the minimum tax floor will no longer have a maximum cap. As from 1 January 2014, the specific component of the excise may not be less than 7.5% and more than 76.5% of the amount of the total tax share, giving Member States more flexibility in determining the balance between the two excise elements depending on the characteristics of their national cigarette market.[11]

10 These results depend on where the most popular brand stands on the excise tax system.
11 http://ec.europa.eu/taxation_customs/taxation/excise_duties/tobacco_products/legislation/index_en.htm

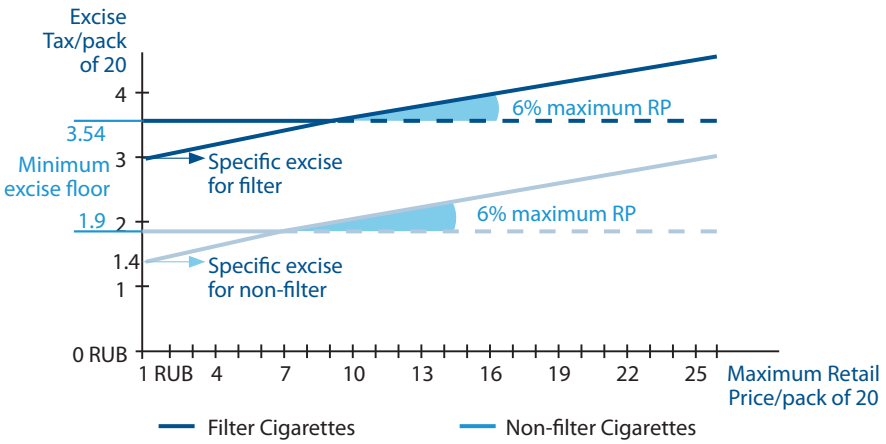
Looking at Upper Middle Income countries, Turkey, for example, increased in 2010 the ad valorem tax to 63% of the retail price with a minimum specific floor of 2.65TL/pack (see Figure 4, below). Russia, on the other hand, adopted a more complicated system: both specific and ad valorem taxation with a minimum tax, differentiating at the same time between filter and non-filtered cigarettes, taxing filtered ones at a higher rate (see Figure 5, below).

Figure 4. 2010 Cigarette excise taxes in Turkey.



Source: Authors' calculations using data from Yurekli et al. (2010)

Figure 5. Russian Excise Taxes for Filter& Non-Filter Brands 2009.



Source: Authors' calculations using data from TMA (2009)

2.4 Considering the appropriate type of excise on tobacco products

This section reviews existing theoretical and empirical evidence on alternative approaches to the choice of (uniform) specific and ad valorem excises and their effects on price, consumption, quality and variety of tobacco products, government revenue and tax administration. Quality here does not refer in any way to the health impact of the product. It may be evaluated based on the packaging or the blend used for the cigarette, or anything that makes the product more appealing to consumers. In that sense, cigarettes might be of "higher or lower quality" but they are equally harmful.

The choice between specific and ad valorem taxes is a long-standing issue in tax policy, and both the level and the structure of excises have different implications for the interests and goals of various groups. Given the market structure of the tobacco industry – typically a monopoly or oligopoly for most products in most countries – different excises may have a different effect on government's revenues, manufacturer's profit, consumer's price, product's "quality" and variety, and ability to administer taxes (see, for example, Keen, 1998; Kay and Keen, 1982; 1983; 1987; 1991; Delipalla and Keen, 1992; Suits and Musgrave, 1953; Skeath and Trandel, 1994; Myles, 1994). Consequently, the two types of excise taxes may have different implications for public health to the extent that they affect individual consumption via their impact on product "quality", variety, and prices. Moreover, governments have the potential to manipulate tobacco excises to manage demand, raise revenue and promote public health.

The key challenge for policy makers is how to choose which type of excise to levy and at what rate, or find the appropriate balance between specific and ad valorem taxation, so that the public health objective is achieved while generating higher revenues. For this, we need to look closely at the relative effects of the two types of excises. The main differences between the two types of excises, as well as practical combinations of the two, are summarized in Table 3 below.

Table 3. Comparison of (uniform) specific and ad valorem excise regimes

	Specific excise	Ad valorem excise
Tax base	The unit of product (e.g. 1000 cigarettes)	The value of the product. (e.g. retail, wholesale or manufacturer price)
Administrative requirements	The tax should be collected at the point of manufacturing and at the time of importation	
	Low as only the volume of the products has to be ascertained.	Requires strong tax administration with technical capacity. Otherwise, the administrative burden can be high.
Undervaluation	Not an issue.	Susceptible to undervaluation, but this can be overcome by establishing a minimum retail sale price.
Impact on product "quality"	Upgrading effect tends to reduce the relative tax on higher-priced brands.	Multiplier effect provides a disincentive to costly "quality" improvement.
Impact on price	Tends to lead to relatively higher prices, particularly for low-priced cigarettes.	Tends to lead to relatively lower prices; price reductions will be "subsidized" if the multiplier effect is strong.
Inflation	The real value of the excise will be eroded unless adjusted in line with inflation.	The real value of the excise will be preserved as prices increase; at least, to the extent that tobacco product prices follow inflation.
Health benefits	The tax will discourage consumption of tobacco products irrespective of the price band.	The tax may encourage more "trading down" in favour of cheaper cigarettes reducing health benefit.

Ad valorem with specific floor	Mixed specific and ad valorem excise	Mixed specific and ad valorem excise with a minimum specific tax floor
The excise is calculated on an ad valorem basis; however, if the calculated tax falls below a specified minimum floor, a specific tax rate applies.	Unit and value of product	Both unit and value, unless tax below specified minimum, in which case the tax base is the unit
The tax should be collected at the point of manufacturing and at the time of importation		
Requires strong tax administration with technical capacity. Otherwise, the administrative burden can be high as with a pure ad valorem regime.	Requires strong tax administration with technical capacity. Otherwise, the administrative burden can be high as it requires assessing and collecting both ad valorem and specific excises.	Requires strong tax administration with technical capacity. Otherwise, the administrative burden can be high as it requires assessing and collecting both ad valorem and specific excises, as well as minimum floor compliance.
This provides an easy tool to prevent undervaluation of low-priced brands subject to the specific floor.	The ad valorem part of the excise collection may be susceptible to undervaluation depending on the choice of tax base.	The specific tax floor prevents possible ad valorem tax base undervaluation of low-priced brands.
No incentive to upgrade higher-priced brands	No incentive to upgrade higher-priced brands	Eliminates incentive to upgrade higher-priced brands while at the same time provides such an incentive for lower-priced brands.
Tends to lead to relatively higher price increases for low-priced cigarettes.	An increase in the specific tax will increase the ad valorem payment as well.	An increase in the specific tax will increase the ad valorem tax amount as well. Increases in the ad valorem and /or specific tax will raise the minimum tax paid, if floor is a percentage of total tax on e.g. WAP. It will reduce price gaps given impact on "quality".
The real value of the specific floor will be eroded over time unless adjusted in line with inflation.	The real value of the specific excise will be eroded unless adjusted in line with inflation.	The real value of the specific excise tax and floor will be eroded unless adjusted in line with inflation.
Specific floor reduces incentives for trading down.	May reduce trading down.	Reduces trading down.

Specific excises tend to increase consumer prices relatively more than ad valorem excises, and hence lead to relatively higher reductions in consumption (e.g. Delipalla and Keen, 1992; Delipalla and O'Donnell, 2001).

Types of excises and consumer price: Under ad valorem taxation firms have an incentive to increase production: when supply increases, price falls but part of the price reduction is borne by the tax office, since the per unit tax payment falls. That is, under ad valorem taxation government "subsidizes" production expansion and lower prices. Along the same lines, if producers increase prices, part of the increase in prices accrues to government as tax revenue. Under specific taxation, though, any increase in producer's price will go to the producer as revenue, and thus would increase producers' incentive to raise prices of their products.

Crude country data compilation also suggests trends in support of this finding. The average retail cigarette price is much higher among countries leaning towards specific excise. Excluding the 19 countries that did not levy any excises in 2008, the average cigarette price among countries levying a mixture of specific and ad valorem excises (most of them EU member states) is $3.87 in countries leaning towards specific excise, and $3.14 in those leaning towards ad valorem. The evidence is even stronger if we look only at countries relying solely on one type of excise. The average cigarette price is $2.46 in countries relying solely on specific excise, while it is $1.29 in countries relying solely on ad valorem. This pattern holds once one accounts for the income level of countries, as shown in Table 4.

Table 4. Average price, excises and excise as a percentage of average price, 2008

Countries by Income Group***	Average Price (AP)/ pack of 20 USD*	Average Excise /pack of 20**	Excise as % of AP
High Income			
Both Excises	$5.30	$3.15	59.4%
Specific dominates ad valorem	$5.49	$3.31	60.3%
Ad valorem dominates specific	$5.12	$3.00	58.6%
Specific only	$5.09	$2.56	50.3%
Middle Income			
Both Excises	$1.51	$0.63	41.6%
Specific dominates ad valorem	$1.73	$0.73	42.1%
Ad valorem dominates specific	$1.43	$0.59	41.4%
Specific only	$1.98	$0.70	35.2%
Ad valorem only			
Upper Middle Income			
Both Excises	$1.76	$0.90	51.0%
Specific only	$2.07	$0.76	36.9%
Ad valorem only	$1.87	$0.72	38.7%
Lower Middle Income			
Both excises	$1.33	$0.46	34.5%
Specific only	$1.90	$0.64	33.6%
Ad valorem only	$1.19	$0.32	27.2%
Low Income			
Specific Only	$1.19	$0.30	25.3%
Ad Valorem Only	$0.99	$0.24	24.8%

NOTES: *Un-weighted arithmetic average of price of the most sold brand of cigarettes in the country converted into US dollars using official (principal or market) exchange rates at end of time period;
** Un-weighted arithmetic average of excise tax applied on most sold brand;
*** July 2008 World Bank classification of countries by income.
Source: Authors' calculations using data from WHO GTCR 2009 (price and tax), IMF (official exchange rate) – except for Myanmar (unofficial exchange rate from the CIA world factbook)

Consumer prices are more likely to rise by more than the tax increase when the tax is specific (tax over-shifting).

Tax over-shifting: Tax over-shifting means that, when tax increases, the consumer price rises by more than the tax increase itself.[12] The higher impact of specific taxes on prices, discussed above, is consistent with a greater possibility of over-shifting of such a tax. Empirical evidence supports this possibility. When taxes are increased, prices are usually adjusted to reflect not only the tax increase but also other cost increases during the last year or so. However, Harris (1987), using data for the US where cigarette taxes are specific, finds that increases in cigarette taxes lead to significant price increases, more than double the size of the tax increase, and this could not be explained by increases in manufacturing costs.

Under specific taxation, any increase in producer's price will go to the producer as revenue, and thus would increase producers' incentive to raise prices of their products. This is not the case under ad valorem taxation, as part of the increase in prices accrues to government as tax revenue.

Specific excises provide incentives for more appealing and higher-priced products, as well as greater variety (e.g. Barzel, 1976; Kay and Keen, 1983, 1987, 1991; Keen, 1998; Cremer and Thisse, 1994).

Product variety and product appeal: Producers' ability to pass taxes on to consumers depends on market power and, as product differentiation creates some monopoly power, producers go to great lengths to differentiate their products. Product differentiation can be vertical or horizontal. In the first case, firms produce the same product but quality varies; all consumers prefer the best quality or, in terms of cigarettes, the most appealing brand, but differ in their willingness to pay for it. In the second case, firms produce different variants of a product.

Upgrading and multiplier effect: Ad valorem taxation has a multiplier effect that favours low "quality": for example, to cover the costs of a $1 "quality" improvement (i.e. improving packaging to make the brand more appealing) requires $1 more pre-tax revenue under specific taxation, but $1.25 more if the tax is ad valorem at a tax-inclusive rate of 20%.[13] The multiplier effect of the ad valorem

12 The degree of over-shifting depends on industry characteristics.
13 At a tax-inclusive rate of 20%, the price will have to increase by 1/(1-0.20) to cover the cost of a $1 improvement.

tax generates a price increase higher than the cost of package improvement: a $1 improvement per unit leads to a price increase of $1.25, as the government taxes the cost of improvement and earns $0.25 extra revenue. In other words, under ad valorem taxation, as producer prices increase to cover the cost of improvements, government tax revenue increases as well due to the multiplier effect.

Variety: As far as variety is concerned, an increase in the ad valorem tax makes markets relatively more competitive, which induces the exit of some firms (brands), reducing product variety in the market.

The result that specific taxation is favourable to more appealing high-priced cigarettes and greater brand variety is important from the tobacco control point of view. Young people are the primary source of new customers for tobacco manufacturers. As brand and image are important for youth, they prefer higher-priced, more heavily marketed cigarettes. Glossy packaging and greater variety offers more satisfaction and choices to consumers and thus increases their willingness to pay. Packaging becomes even more important when other promotional activities are restricted or eliminated by law.

Specific excises are less likely to induce substitution from high- to low-priced brands (e.g. switching down).

Consumers of tobacco products may reduce consumption of their preferred brand or may "switch down" when facing tax or price increases. As a result, a price increase due to higher taxes, although it will still reduce cigarette consumption, it may not reduce it as much as expected. When a uniform specific tax is levied on all brands of cigarettes, an increase in the excise would reduce the relative price of higher- to lower-priced brands. Such a change in relative prices would reduce consumers' incentive to substitute downwards. The opportunity of downwards substitutability arises at the higher end and middle of the price distribution of cigarette brands. With ad valorem taxation, as its tax base is the value of cigarettes, a uniform increase in the tax would keep relative prices unchanged.

However, one might argue that an upwards substitutability might occur when the price gap between cheaper and more expensive brands narrows. The price increase, due to higher taxation, may alter consumers' marginal willingness to pay for product "quality" subject to income. The hypothesis that the market share of lower-priced cigarettes falls when specific excises increase, as the relative price between higher- and lower-priced cigarettes is reduced, has been supported by

empirical evidence. Sobel and Garrett (1997) find that increases in specific taxes reduced the market share of generic (lower-priced) brands in the U.S. significantly.[14]

The European Commission, recognizing the health objectives of cigarette excises as well as the fact that specific taxation favours producers of expensive brands, favours a more customized system: effectively apply a specific tax to lower-priced brands (through a minimum specific tax floor) and an ad valorem tax to the higher-priced ones. This way, taxes contribute to a level-playing field among manufacturers.[15]

Relying on specific taxation will in the long run increase market concentration and industry profits.

Industry profit: Theory shows that profits are relatively higher under specific taxation (e.g. Delipalla and Keen, 1992). Moreover, a tax increase may lead to an increase in profits. More than 100% over-shifting (i.e. prices rise by more than the tax increase itself) is a requisite for an increase in profits: as a higher tax increases consumer price and reduces demand, for profits to rise, the after-tax mark up must rise. It is not therefore surprising that tobacco multinationals prefer specific taxes.

Along with increases in the specific tax, governments may find they need to implement other policies to counteract the tobacco industry's increased market power.

In general, the level of revenue from each tax differs according to the market characteristics. Governments care not only about its level but also its certainty and stability, as well as the ease of administration and enforcement.

Level of tax revenue: Theory suggests that there is probably an optimal balance between ad valorem and specific excises in terms of maximizing government revenue, assuming this is the government's objective, and/or minimizing variations in tax revenues (e.g. Bohanon and van Cott, 1984; 1991; Kay and Keen, 1987; Keen, 1998; Delipalla and Keen, 2006).

As taxes affect prices both directly and indirectly through their effect on "quality" and the number of different brands available in the market, consumers may

14 Recent evidence in Turkey shows that the share of lower priced brands declined over several years of consistently increasing specific excises. We must note though that at the same time per capita income also increased.

15 http://ec.europa.eu/taxation_customs/taxation/excise_duties/tobacco_products/legislation/index_en.htm

consume less of their preferred brand, may consume the same units as before but of a cheaper brand, or may consume less of a more expensive brand. Predicting revenue in an accurate way is very difficult as one has to predict changes in consumer behavior. If we want to eliminate changes in consumer behavior, other than the ones induced by the price increase, one should impose whichever form of taxation has the least effect on product characteristics. If the government's goal is to raise revenue, it should do this with minimum distortion: distorting prices is inevitable but distorting quality serves no useful purpose (e.g. Kay and Keen, 1987; Delipalla and Keen, 2006).[16]

Certainty of tax revenue: As specific excises are independent of changes in price, they generally produce a more stable stream of government revenue.

As taxes increase, the industry also increases its own price, but the level of increase is not certain; this fact is likely to cause uncertainty in the level of the tax-inclusive consumer price. In general, when there is price uncertainty, price elasticity plays a crucial role in the determination of the type of excise levied on cigarettes to ensure expected tax revenue or to eliminate the variation in revenue (Kay and Keen, 1982; Keen, 1998). Cigarette consumption will not change as price changes, if demand is completely inelastic (zero price elasticity). In such a case, as quantity remains constant after a tax increase, taxing quantity (i.e. specific taxation) would remove any variations in government revenue. Alternatively, if demand elasticity is constant (e.g. price elasticity of 1 at all price levels), consumers spend on cigarettes the same amount of income no matter what the price level; in this case, ad valorem taxation ensures more stable government revenue. However, empirical evidence shows that cigarette demand elasticity is somewhere between zero and one in most countries (see Table 4, in Annex). In the face of uncertainty, Kay and Keen (1982) show that stability of expected tax revenue requires a ratio of ad valorem to total taxation below the expected value of elasticity.

Ease of administration: Specific taxes are much easier to administer. Once the 'unit' of quantity is defined, the government revenue can be collected at any stage (e.g. manufacturer, wholesaler or importation). Under ad valorem taxation, administration relies on the manufacturers' declaration of price at manufacturing or retail level. To avoid undervaluation, technically sound tax administration and awareness of the manufacturers' pricing policies are required.

16 From a public health point of view, however, distorting product characteristics (not just prices) might be desirable.

Ease of enforcement: Ad valorem taxation is more likely to involve valuation problems, especially if the tax base is the manufacturer's price. That is, under ad valorem taxation tobacco manufacturers have the potential to sell their products to a related marketing company at an artificially low price, in order to reduce the excise tax liability (transfer pricing). Consequently, the government revenue from ad valorem tax declines due to the reduction in tax base. It is just this valuation problem that led the Philippines to abandon ad valorem taxes on cigarettes in favour of specific excises and the Russian Federation to impose specific excises on imported cigarettes instead of ad valorem taxes in 1996.

Keeping pace with inflation: An ad valorem tax maintains revenue value under high inflation given that the amount of the tax increases as prices increase, while specific taxes need to be adjusted with the Consumer Price Index (CPI) to keep pace with inflation[17].

Discouraging tax avoidance: Under specific taxation the manufacturer can manipulate the length of the cigarette or the size of the pack to reduce tax payment. As an example, in the UK, the market share of smaller cigarettes – which had dominated the market – fell from 83% to 25% between 1975 and 1981 due to a switch from a tax system based on weight of tobacco content to one with roughly equal parts of specific and ad valorem components (Kay and Keen, 1983). Under specific taxation, the unit on which the tax is based should be clear and undisputable (e.g. per cigarette of certain length, above which it is taxed as two cigarettes).

17 However, most countries that impose a specific excise tax on tobacco do not automatically adjust it to keep pace with inflation.

2.5 The choice between a uniform and a differential rate tax system

A simple and unified excise tax system that taxes all cigarettes (or tobacco products) at the same level is more appropriate for reducing smoking (tobacco use) while at the same time leading to a more effective tax administration and higher tax revenues. A unit-rate excise tax system would reduce incentives for substitution among different brands (or tobacco products), reduce non-compliance and eliminate incentives for various pricing strategies by manufacturers to reduce their tax liability.

The global trend is for governments to simplify their excise tax systems. However, a significant number of countries still differentiate within brands and among products by taxing them at different rates as well as levying different types of excises. As shown in Annex Table 1, 33 of 155 countries impose a differential excise tax system, and among those, 21 countries levy a tiered specific rate, including large cigarette consuming countries such as Brazil, Egypt, India, Indonesia, and the Philippines; 6 countries, including Bangladesh, levy a differential ad valorem excise; and 6 countries including China, Pakistan, Russia, and Ukraine levy a differential mixture of both excises.

A tiered tax system, be it specific or ad valorem, may be an outcome of various political economy reasons, the most common one being protecting domestic producers. However, it provides incentives for price manipulations to the extent that manufacturers can alter their pricing or production behavior to avoid higher tax liabilities.

An increasing number of countries have eliminated their differential excise tax system (e.g. Mexico, Viet Nam) and imposed a uniform tax rate on all brands, or have reformed excises in a way that reduces the price gap among brands. Egypt, Poland, Russia, Turkey, and Ukraine are among those countries that have restructured their excise systems by increasing tax rates relatively more for the lower-end of prices and consequently put pressure on companies to increase prices on the economy brands. Table 5 shows price per pack and total tax share for the most popular, cheapest, and most premium brands for the 15 countries with 2/3 of the burden of tobacco related deaths, also known as the Bloomberg Initiative countries.

Table 5. Price per pack versus total tax share by cigarette price category

Country	Price (USD)			Total tax share (%)		
	Most popular	Cheapest	Premium	Most popular	Cheapest	Premium
Bangladesh	0.38	0.17	1.04	67%	47%	87%
Brazil*	1.03	1.03	1.28	58%	58%	63%
China	0.73	0.29	1.76	38%	40%	44%
Egypt*	0.49	0.49	1.52	59%	59%	39%
India	1.65	1.40	1.86	55%	50%	50%
Indonesia**	0.96	0.46	0.87	51%	44%	50%
Mexico***	2.07	1.26	2.07	65%	65%	65%
Pakistan	0.23	0.16	0.80	53%	63%	68%
Philippines*	0.53	0.53	0.84	54%	54%	76%
Poland	1.94	1.15	2.65	94%	91%	85%
Russia	0.51	0.14	1.26	37%	47%	27%
Thailand	1.29	0.75	1.81	64%	65%	63%
Turkey	1.97	1.41	3.15	73%	87%	73%
Ukraine	0.39	0.08	0.65	45%	61%	39%
Viet Nam	0.65	0.15	0.94	45%	45%	45%

* Most popular and cheapest are the same brand
** Most popular and cheapest are Kreteks
*** Most popular and premium are the same brand
Source: Authors' calculations using data from WHO GTCR 2009

2.6 Summary

WHO'S OBJECTIVE is to improve public health. In each country, the Ministry of Health has the same objective. Decisions on tobacco tax rates and structure, however, are made by the Ministry of Finance, for whom revenue generation is likely to be a key objective. In general, governments want to improve public health without compromising tax revenues. Raising extra revenues will take care of the resource problem that troubles tobacco control funding. Tobacco tax revenues can be used to subsidize tobacco cessation products (particularly among the poor), anti-tobacco media campaigns and other tobacco control efforts. This would lead to larger reductions in tobacco consumption and a better public health outcome than would be achieved from tobacco tax increases alone.

In this chapter, we reviewed the merits of each type of excise depending upon the objective. It is a generally accepted tax principle that one instrument is used per target. Targeting public health, specific taxation is the appropriate instrument, as it has two favourable effects. First, increases in specific excises would lead to relatively higher price increases, causing price sensitive consumers to reduce their consumption relatively more. Second, it reduces consumers' incentives to substitute higher-priced brands for lower-priced ones, especially when consumers find it difficult to quit or reduce consumption after a tax increase. This impact will be greater on poor and youth smoking behavior given their budget constraints. On the other hand, though, we have to acknowledge that specific taxation is favourable to higher-priced and more appealing brands as well as greater variety of them, offering more satisfaction and choices to consumers, especially influencing young ones who are brand and image oriented.

Both types of excises are instruments the government can use to control tobacco demand. The government can impose a high specific tax to increase retail prices and reduce the market share of cheap cigarettes. This action would certainly reduce (or prevent) demand for cigarettes by poor and young smokers. The government can impose an ad valorem tax to adjust the "quality" and variety of products to a desired level.

When it comes to which excise generates more revenues, either type of excise can be the appropriate instrument depending on the characteristics of the product consumed most widely and the structure of the industry.

Moreover, higher revenue targets are usually constrained by political economy considerations. Voter preferences are taken into account by elected officials as they wish to be re-elected. Achieving higher prices for all brands and reducing price differentials would improve the public health target and tax revenues. However, governments may hesitate to raise taxes on a widely consumed and inexpensive brand or tobacco products, and may try to preserve the price differential as much as possible. Governments will find it politically feasible to raise taxes on such brands gradually when health awareness improves and reaches all socioeconomic groups in the country. Thus, depending on individual country situation, gradual and transitional reforms can be undertaken.

There is no single rule where one size fits all. Governments may prefer one instrument over the other depending on industry characteristics, public choice issues, and the level of health awareness at the time. Consumer preferences gradually change as people become more informed of the health effects of the consumption of tobacco products and industry's advertising policies are banned, giving governments more leverage to raise taxes on all brands.

Given the evidence (see Annex Table 3), most developing and even developed countries still have great potential to raise tobacco excises. Only in a few low- and middle-income countries are cigarette excises are higher than 50% of the retail price. Indeed, only 4 out of the 45 low-income countries, 15 out of 58 lower-middle countries and 15 out of 43 upper-middle income countries tax cigarettes at a rate of 50% or higher. On the contrary, only 12 out of 48 high-income countries tax cigarettes at a rate less than 50%. On average, the total cigarette excise is 25% of the retail price for low-income countries, 31% for lower-middle countries, 41% for upper-middle countries, and 53% for higher income countries.

Studies show that choosing a excise tax that represents at least 70% of the retail price will make a difference with respect to lives saved (e.g. Ross et al, 2008, 2009). A 70% benchmark does seem to be a feasible target given that it has already been reached by a few countries around the globe, including some developing countries. A quick estimate of the average excise tax share of the most popular brand among the ten countries with the highest excise share, gives an average of about 74%.[18] Reaching the 70% standard, however, might involve different steps by different countries, and may depend on factors such as their starting point with respect to tax structure and tax rates. We turn to these issues in the next chapter.

18 The countries are: Brunei Darussalam, Bulgaria, Cuba, Fiji, Mauritius, Myanmar, Poland, Seychelles, Slovakia and Venezuela (WHO GTCR, 2009).

CHAPTER III

Tax Administration

THERE ARE AT LEAST THREE reasons why governments impose or increase excise taxes on tobacco products: to raise revenue, to correct for externalities, and to discourage the use of tobacco products (McCarten and Stotsky, 1995; Warner *et.al*, 1995). In this chapter, we will focus on tax administration capacity and the key factors tax administrators should be aware of given these goals.

3.1 Tax Administration's Capacity

Tax administration should be effective in the sense of ensuring high compliance by taxpayers, and efficient in the sense that administrative costs are low relative to revenue collected. Good tax administration requires strong technical capacity by the administrative agency but also a well-designed tax. The administrative agency should be able to identify and evaluate the effects of both current tax policies and tax policies under consideration, be able to simplify the current tax system if needed, within the economic and political spectrum, be aware of any law changes and emerging avoidance practices, and maintain a connection between the rule of law and tax administration.

3.1.1 Identify and evaluate the effects of tobacco tax policies

When generating higher revenue or reducing tobacco use is the goal, the administrative agency should aim at increasing taxes on goods that have large sales volumes and few producers – hence making it easy to collect taxes, with inelastic demand, a low share of tax on retail prices, easy definability, and a lack of close substitutes. These goods provide a relatively sustainable and profitable revenue stream. Tobacco products have most, if not all, of these characteristics. We will discuss a number of features of tobacco products and the importance for government to evaluate their impact on tax revenues and consumption.

Price elasticity of tobacco products: Based on evidence from a growing number of countries, including lower middle income countries, demand for tobacco products is inelastic (price elasticity is less than -1 in absolute value), with price elasticity ranging between -0.2 to -0.8 (with a few exceptions; see the summary in Annex Table 4). Consequently, an increase in taxes will result in a net gain in total tax revenues.[19]

Share of tax in retail price: As seen in Annex Table 3, the share of total tax in retail price varies between 8 percent and 89 percent among countries (WHO GTCR, 2009). The share of tax in retail price ensures revenue increases as long as the tax rate increase is far larger than the price increase it generates. That means, revenue increases would be ensured in many instances, even when the price elasticity is greater than -1 (in absolute value).

Table 6 below shows the percentage of increase in revenues under different price elasticity scenarios and different tax shares by country income groups, as the excise tax per pack of cigarettes increases by 50%, 75% and 100%. It demonstrates that low and lower middle income countries could generate significant revenues if they increase their excises, even when demand for cigarettes becomes less inelastic in the near future. Note that estimations here do not take into account the impact of increases in per capita income on cigarette consumption and hence on revenues.

19 The less elastic the demand, the less effective the tax in reducing cigarette consumption, but the greater the gain in tax revenues.

Table 6. Percentage increase in excise revenues under different price elasticity scenarios.

	Total tax as % of retail price	Excise as % of retail price	As excise tax per pack increases by	% increase in excise revenue when the price elasticity of demand is equal to			
				- 0.4	- 0.6	- 0.8	-1.0
Low Income Countries	40%	25%	50%	40%	35%	30%	25%
			75%	58%	49%	40%	31%
			100%	73%	60%	47%	33%
Lower Middle Income Countries	45%	30%	50%	38%	32%	26%	20%
			75%	54%	43%	33%	23%
			100%	68%	52%	36%	20%
Upper – Middle and High Income Countries	56%	45%	50%	32%	23%	14%	5%
			75%	43%	28%	12%	- 4%
			100%	52%	28%	4%	- 20%
	65%	50%	50%	30%	26%	10%	0%
			75%	40%	22%	5%	- 12%
			100%	47%	20%	- 7%	- 33%
High Income Countries	85%	70%	50%	22%	8%	- 6%	- 20%
			75%	18%	1%	- 3%	- 68%

NOTE: These calculations do not take into account brand substitution (cross price elasticities), income effects or illicit trade. VAT and retailers' margin (RM) are assumed to be 15% and 10% of retail price respectively.
Source: Author's calculations using data from WHO GTCR 2009

Income effect: Empirical evidence from most low and middle income countries indicates that there is a positive relationship between demand for cigarettes and per capita income. When per capita income increases, consumers may increase their consumption or switch towards more expensive brands, and these would contribute positively to the revenue stream. However, data between 1990 and 2007 reveal that the relationship between income and cigarette consumption has been reversed in higher income countries. During this time, average real GDP per adult population (15 years old and up) increased by 19.5 percent worldwide, from US$6,848/adult to US$8,181/adult. At the same time global cigarette consumption per adult population decreased by 17 percent from 1,453 pieces to 1,208 pieces. Although higher income countries experienced a 26 to 27 percent increase in per

adult income (GDP/adult), per adult cigarette consumption declined by 35 percent in high income countries and 14 percent in upper middle income countries. Lower middle income countries experienced the highest increase in per adult income[20] (an increases of 121 percent), but consumption in these countries fell by only one percent, likely reflecting the impact of other tobacco control measures that about offset the effects of income increases on demand. The positive relationship between income and consumption is most evident in low income countries where average per adult income increased by 26 percent and cigarette consumption per adult increased by 24 percent, from 337 pieces in 1990 to 418 pieces in 2007 (IMF, 2009; ERC, 2008).

Despite reductions in global per capita consumption, evidence from a growing number of countries shows that the market share of premium brands has been increasing, suggesting that consumers are shifting their preferences towards higher-priced brands as income increases. For example, in recent years, gross domestic product (GDP) more than doubled in Viet Nam, while the market share of upscale foreign brands increased from 5 percent in 1998 to 20 percent in 2005. The retail prices of foreign brands ranged from $0.63 to $1.88/pack whereas lower grade brand prices ranged from $0.07 to $0.63/pack (Guindon et al., 2010).

In Russia, the market share of premium cigarette brands was the fastest growing segment of the cigarette market between 2004 and 2005, even in rural areas which have experienced strong economic growth accompanied by growing purchasing power (Ross et al., 2008). In Pakistan, a low income country, the share of premium brands is predicted to increase from 15 percent to 17% between 2006 and 2011, while mid-priced and economy brand shares are expected to decline from 85 percent to 83 percent during that time (Euromonitor, 2009). Similar trends are also observed in Turkey and Egypt. The price for Marlboro cigarettes in Egypt was EL 4.50/pack and its market share was 3.6 percent in 2001 (Euromonitor, 2009). In 2009, the price almost doubled to EL 8.50/pack while its market share increased to over 6 percent (MoF Egypt 2009). In Turkey, there are two to three fold differences in prices between premium and economy brands. Despite this, the market share for the premium brands increased from 7.5 percent in 2001 to 18.4 percent in 2006 (Euromonitor, 2009), and 20 percent in 2008 (Yurekli et al., 2010). The market share for economy brands decreased from 59 percent in 2001 to 45.4 percent in 2006 (Euromonitor, 2009) and 41 percent in 2008 (Yurekli et al, 2010).

20 Income divided by the adult population.

Overall impact of cigarette tax increases on consumption and tax revenue: Tax authorities should be aware of the market conditions and the factors affecting consumer purchasing behavior. From a revenue perspective, large volumes of sales help generate more revenues as excises increase, despite tax-induced reduction in sales. However, a positive relationship between income and tobacco consumption can level off the expected tax-induced reductions in sales, leading to higher revenues for the government but smaller reductions in consumption.

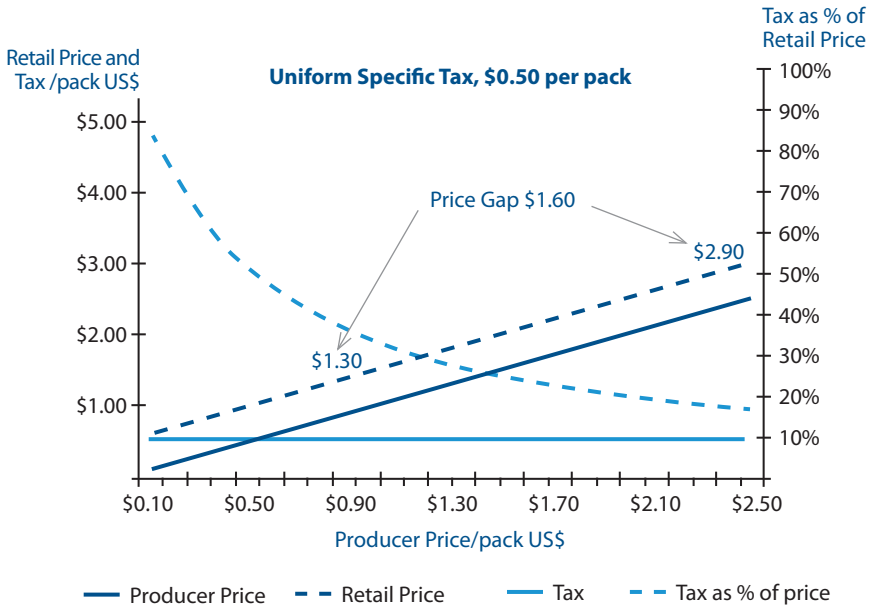
Designing the tax structure and determining the level of tax increase should be evaluated carefully by taking into account the price and income sensitivity of consumers, so that tax policy serves both public health and revenue objectives. As shown in Annex Table 3, the majority of countries have ample of room to increase their revenues as they increase taxes. However, a rule of thumb suggests that in order to achieve public health objectives by increasing prices and reducing consumption, increase in tobacco taxes should be higher than inflation and increases in income, so that the tobacco products become less affordable.

3.1.2 Have a Well-Designed Tax Policy

A well-designed excise tax policy exhibits transparency and easy definability, increasing efficiency by reducing administrative costs.

A good candidate for a well-designed tax system is a simple and unified excise tax system with all tobacco products taxed at the same level. Such a system would be an ideal system for tax authorities with respect to generating more revenues while reducing cigarette consumption. A strong case can be made for a uniform specific excise tax in terms of generating more revenues, by reducing non-compliance and unfavourable pricing strategies among producers, while reducing cigarette consumption by increasing average cigarette prices. Furthermore, a uniform specific excise reduces price gaps between brands and tobacco products, minimizing substitution behavior of consumers among brands and products. The impact of such a system on price gaps is illustrated in Figure 6 for higher priced brands and lower priced brands. In this Figure a uniform tax of 0.5$ per pack is considered. Figures 6 to 11 that follow also estimate the impact of different tax structures using comparable assumptions (same distribution in the producer price). The price gap in a uniform specific tax seems to be the smallest compared with all other tax structures.

Figure 6. Uniform specific tax and price gap between cigarettes



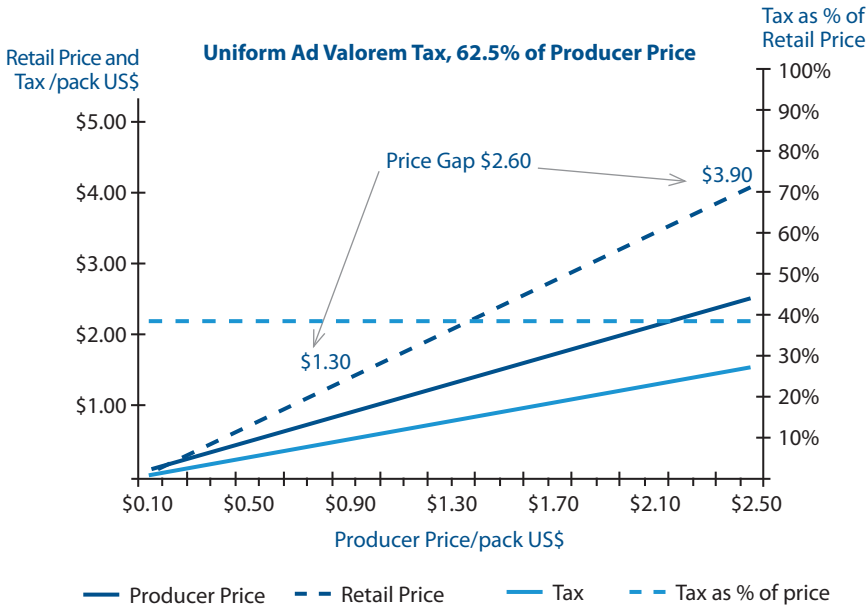
Reforming tax structures

As described in chapter 2, countries use different tax structures when taxing tobacco products. This section examines some of these structures, discusses the drawbacks and suggests possible next steps.

Uniform ad valorem tax structure

Under a uniform ad valorem excise system, as illustrated in Figure 7 for low priced brands and high priced brands, the resulting price gap between brands can be quite wide.

Figure 7. Uniform ad valorem tax and price gap between cigarettes



Tax system with a minimum specific excise floor

Large price gaps between high and low priced brands that result under an ad valorem tax structure also produce large gaps in the amount of tax collected on these brands. As a result, some governments have introduced a minimum specific excise floor (e.g. Russia, Ukraine, Turkey) to ensure higher revenues from brands in lower price bands, while levying either an ad valorem excise (e.g. Turkey) or a mixture of both excises (e.g. Russia and Ukraine) on higher-priced brands. These structures are illustrated in Figures 8 and 9 for low priced brand to high priced brand. In such a structure, the excise tax applied is either a mixture of both excises or only ad valorem, unless the associated tax payment is less than the specific minimum, in which case the minimum excise applies. A minimum specific excise ensures revenues from low priced brands while at the same time puts pressure on those brands to increase their prices. Prices for low priced cigarettes go up while higher taxes are paid for expensive cigarettes, ensuring higher revenues.

Figure 8. Mixed system with a minimum specific floor

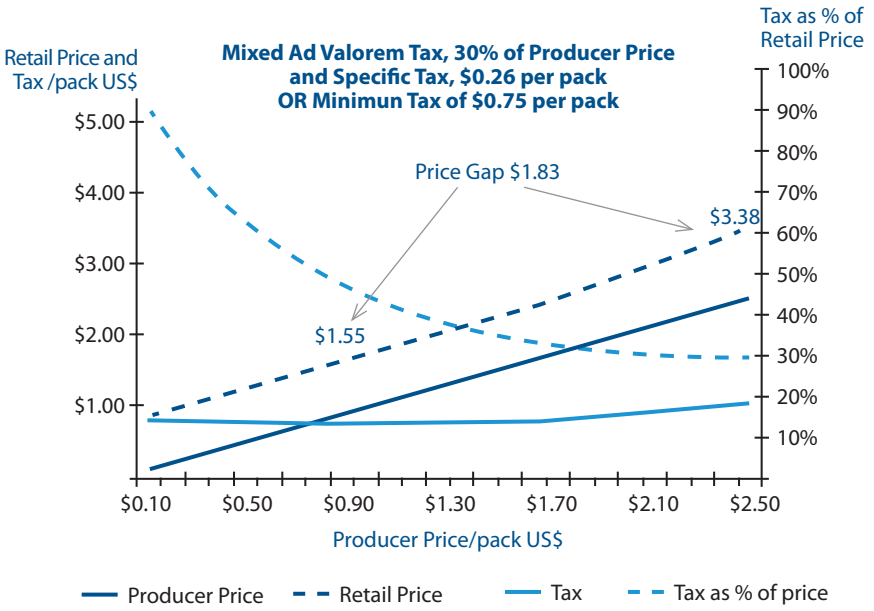
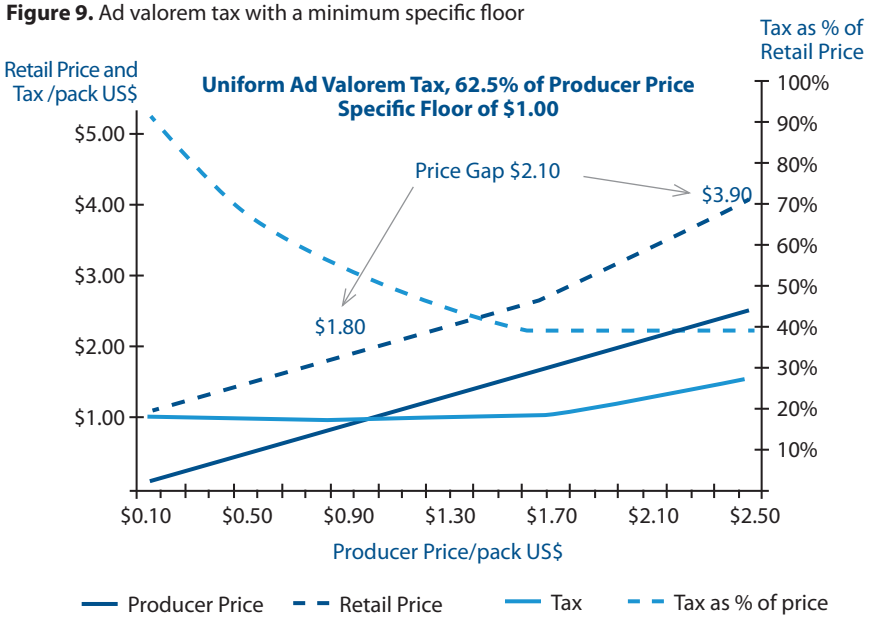


Figure 9. Ad valorem tax with a minimum specific floor



This tax structure, however, carries some drawbacks.

As the ad valorem excise increases, the revenue stream depends on the manufacturers' pricing decision. Depending on higher-priced brands' share in total tobacco excise revenues, any unexpected industry price reductions will jeopardize the expected revenues from higher ad valorem rates. For example, Turkey generates most of its revenues from mid-priced to premium brands that are subject to ad valorem taxes and its revenue stream depends on manufacturers' pricing decisions. At times, tax administrators negotiate with manufacturers to increase their prices in order to increase revenues. However, such negotiations do not always produce the desired results, leading to lower than anticipated revenues.

The cost of administering the ad valorem part of the tax system may increase in this process because of (i) negotiations with the manufacturers to increase their prices and (ii) monitoring for tax avoidance practices, as the corresponding price serving as the tax base is determined by the manufacturers. Russia is a good example. Prior to 2007, Russia levied an ad valorem tax on the wholesale price (ex-factory price exclusive of sales tax or VAT). Some manufacturers declared a very low wholesale price, but after the tax was levied, the wholesalers added their own price margins and shared the profit with the manufacturers (Ross et al, 2009). Since 2008, Russia levies an ad valorem excise based on the maximum retail price.

Suggested Next Steps: Given the existing evidence, a minimum specific floor system requires strong technical capacity, implies higher costs of administration, and higher likelihood of experiencing "unfavourable" pricing strategies and possible tax avoidance compared with a uniform specific excise system.

In order to avoid unexpected results and ensure revenue flows in the mid- to long term, the minimum specific floor system can be moved towards a uniform specific excise system by increasing the minimum specific floor tax relatively more than the ad valorem rate. The ad valorem rate in the meantime needs to be adjusted carefully so that current excise liabilities and the revenue stream of the premium and mid priced brands are not compromised.

Differential excise system

As mentioned in chapter 2, many countries, including large cigarette producing and consuming countries (e.g. Bangladesh, Brazil, China, Egypt, India, Indonesia, Pakistan, Philippines, and Ukraine), impose a differential excise tax system by levying different rates within and among tobacco products. One of the consequences of such differential tax systems can be even wider price gaps among brands, as illustrated in Figures 10 and 11, where a lower rate is applied to a low priced brand and a higher rate is applied to a higher priced brand.

Figure 10. Price gap in a differential excise system (specific)

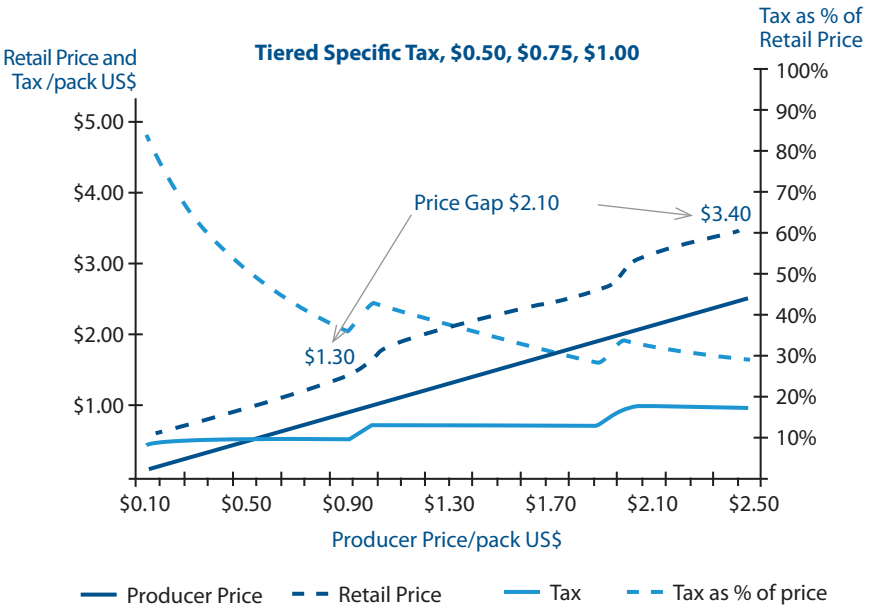
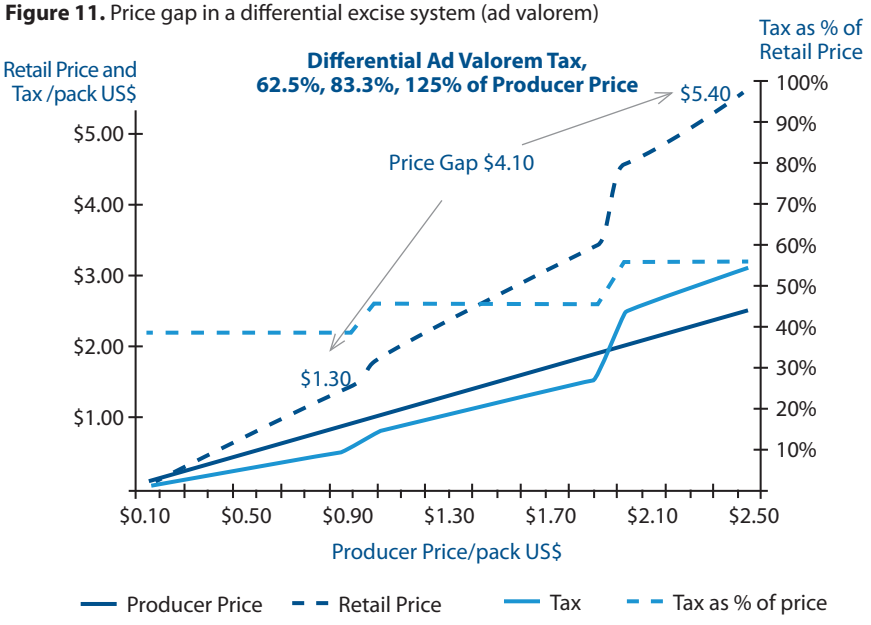


Figure 11. Price gap in a differential excise system (ad valorem)



Since a differential tax system is based on various product characteristics, it provides incentives for tax avoidance to the extent that manufacturers can alter their pricing or production decisions to avoid higher tax liabilities. For example, when the tax authorities in Turkey set up a differential excise system by imposing tax rates favouring brands with high oriental tobacco content, companies quickly adjusted the content of their brands and avoided the higher taxes. Actual revenues ended up well below expected revenues due to the product alteration. In 2009, the retail price of one of the premium brands in Egypt was reduced in order to avoid higher taxes, falling into the mid-level category on which a lower tax was applied. In Indonesia, the differential tax system favours companies with small production systems, and currently there exist about 4,500 small to mid scale companies producing white and kretek cigarettes. In order to eliminate such tax avoidance, the Indonesian government passed legislation banning the establishment of new small to mid-scale companies.

Suggested Next Steps: Governments may have various justifications for imposing a differential tax system, including a strong interest in protecting domestic producers by favouring small-scale producers over the larger ones or domestic producers over foreign companies. This is probably the case in China, Thailand, and Egypt, where the government owns the company or has a major share in it. However, differential tax systems increase the possibilities for undesirable tax minimization behavior via manufacturers' pricing policies and lead to revenue losses for governments.

In the short term, given economic and political realities, governments have at least two options before reaching a uniform specific excise system. They may: (1) reduce tiers gradually and have just one rate in the mid- to long term, and (2) if there is a wide gap between price bands, adopt a minimum specific floor similar to the EU system with a mixture of both excises, or with just an ad valorem tax, similar to the Turkish system, in the short term to reduce price gaps; finally, adopt a uniform specific excise in the long term.

3.1.3 Ensure tax compliance for higher revenues

The strength of administration comes from the administrators' ability to monitor and enhance tax compliance, and ensure higher revenues by reducing opportunities for tax evasion and tax avoidance.

The rationale for monitoring tax compliance derives from the primary goal of tax administration which is to "collect the taxes and duties payable in accordance with the law and to do this in such manner that will sustain confidence in the tax system and its administration. The actions of taxpayers – whether due to ignorance, carelessness, recklessness, or deliberate evasion – as well as weaknesses in a tax administration mean that instances of failure to comply with the law are inevitable. Therefore, tax administration should have in place strategies and structures to ensure that non-compliance with tax law is kept to a minimum" (CTPA, 2008).[21]

Tax authorities in many countries may implement the following compliance measures as they may be indicated in tax laws:

- Require producers, importers and exporters to register for tax purposes and get a license for production, distribution, and retail sales;
- Eliminate non-compliance by monitoring domestic production and trade activities by
  - conducting physical control,
  - requiring tax stamps on tobacco products, and
- Require tax payers (manufacturers, importers) to file tax returns and pay the tax liability within a specific period of time after the tobacco products leave the factories or before entering the country.

3.1.4 Monitoring production

Effective administration of excise taxes requires a well established integration between tax payers and the tax administration agency. In countries with well established tax collection systems, excise taxes are administered by relying on the taxpayer's registration, filing and payment of tax returns. Tax authorities, in return, carry out enforcement actions in order to ensure the compliance by verification. The most common enforcement action is that tax administrators audit tax payers' account books periodically. In addition, some countries rely on relatively more costly enforcement methods in order to combat illicit activities and ensure higher revenues as discussed below.

21 Center for Tax Policy and Administration (2008). Forum on Tax Administration: Compliance sub-group. Final report. Monitoring taxpayers' compliance: A practical guide based on Revenue body experience. www.oecd.gov.

Conducting physical control: In general, in countries with poor administration systems, "enforced compliance" is carried out by imposing physical control over the production/ manufacturing process. Cost of physical control increases when the potential for fraud by excise officers is considered. However, fraud can be diminished significantly when excise officers are rotated frequently among different locations and supervisors make surprise visits. India and Georgia are good examples of countries that use intensive controls on tobacco manufacturing. In India, a tax administrator is placed around the clock in cigarette and large bidi-manufacturing facilities. Each officer records the daily production and the quantity of cigarettes/bidis that leaves the factory and reports to the next officer (MoF India, 2009). In Georgia, the government strictly supervises the sale, transportation and storage of tobacco products (Euromonitor, 2008). The physical control system was also adopted by high-income countries in the past, where some used intensive physical controls on excisable goods (Sunley et al, 2000). For example, whiskey distilleries in Scotland once had official locks on their entrances, exits, and key areas of the production process that were vulnerable to unlawful extraction. Each distillery had a resident excise officer who lived in a house provided next door to the distillery, and no activity could take place without the officer being present to unlock the locks. Similarly, each bonded warehouse used to have a resident officer who had to unlock and lock the warehouse. Now, the United Kingdom relies on the warehouse keeper to exercise day-to-day control, with official control based on spot checks and systems of audit.

In order to reduce non-compliance, and control for illicit production and trade, most governments require manufacturers to affix tax stamps on tobacco products. In recent years, an increasing number of countries are choosing more costly measures by adopting new technologies for monitoring the production level directly.

Tax stamps: Tax stamps are required by many countries as a way of ensuring tax payers' compliance by monitoring production and distinguishing licit tobacco products from illicit ones. Products that don't carry tax stamps are considered to be illegally produced or smuggled. However, the application of tax stamps varies by countries. For example, tax stamps are required for brands produced by companies producing over 50 million pieces of cigarettes annually and their brands meet the national standards by Viet Nam, or hard packs of cigarettes first, then for all cigarettes, in Bangladesh (ERC, 2008). Uruguay do not require tax stamps on cigarettes sold in duty free shops located in border areas and in airports, but require orange stickers on them with the message "For sale only at duty free shops" in order to avoid their resale in the country (Euromonitor, 2008). Similarly, Serbia required a red stamp for locally manufactured brands, green for licensed brands and blue for imported brands (ERC, 2008).

Cost of tax stamps: Companies pay the cost of tax stamps or banderoles at the time of purchase from the tax or other dedicated authorities. The value of each stamp is calculated differently, by piece of cigarette (e.g. Indonesia), cigar, cigarillo, per 1000 pieces (e.g. EU), or a pack of a number of cigarettes, and per kilogram for tobacco. The relatively low cost of stamps is paid by the manufacturers or distributors but this cost is shifted to consumers as a price increase. Initially some countries subsidized the cost (e.g. Viet Nam), but today manufacturers pay and shift the cost to consumers, increasing the retail price.

Enhanced-tax stamps (Banderoles): In recent years, some governments (e.g. Turkey and Brazil, State of California in USA) have adopted a new technology on tax stamps in order to reduce the risks of counterfeit tax stamps, monitor domestic producers more efficiently, and increase the efficiency in information flow. The system requires manufacturers' compliance since monitoring scanners are placed at production facilities. Monitoring scanners read the tax stamps and electronically transfer the information to the Ministry of Finance. Consequently, the tax administration agency receives live information on how many packs of cigarettes are produced, in which factories, what the brands are, when the products are produced by which factories, and other useful information for tracking, tracing and enforcement. The system enables the tax administrators to verify manufacturers' compliance.

Digital tax stamps: Another alternative is a digital tax stamp. Similar to the banderole stamps, digital tax stamps provide an effective tracking and tracing system to reduce tax evasion. They carry information about the brand and manufacturer's name, the facility where the products are produced, the time the stamp was produced and purchased and so on, so that the product can be traced back to its source. The main difference between the two high tech stamps may be in the way they operate. With the banderoles, the Ministry of Finance gets all the necessary information live, as the cigarettes are being produced. The digital system on the other hand, requires distributors to place an order via a secure connection to a designated government authority. After the authority verifies and approves the order, the distributor fulfils the order by delivering encrypted codes and authorizing digital stamps. However, it is not clear how the authority verifies the order. It is the cigarette distributor that prints the digital stamps and then the cigarettes are shipped to retail outlets (Authentix, 2006).[22]

Cost of advanced tax stamps: The banderole system is a more expensive system than a traditional tax stamp systems. A number of countries have been examining its adoption, including Philippines, Indonesia, Pakistan, Russia, and Ukraine, but cost has been an impediment to adoption and implementation. In Turkey, the total cost of the system is divided into a five year payment plan based on the production of the cigarettes and alcohol. For cigarettes, the cost is spread over the price of banderoles based on the quantity of cigarette production; this has increased the cost and raised the retail price by 6TL/1000 cigarettes (0.38% to 0.21% increase of the average retail price/pack for economy and premium brands respectively, in 2009) for five years. In Brazil, it was the duty of cigarette manufacturers to pay for the installation and maintenance of the system on each production line (1% to 1.6% of retail price/pack). For Philippines, the cost of implementing the system for the tobacco and alcohol industry will be borne by the tobacco and liquor companies.[23]

22 Presentation made by Authentix in 2006 at the FTA Technology Center, Albuquerque, New Mexico, August 14, 2006

23 The Manila Times, 11 May 2009 *Link:* http://tiny.cc/cngKE

3.2 Other Tax Administration Issues

Payment of excises

The global application of tax payments is usually based on the manufacturers' declaration of their production level. The tax is paid within a minimum of 15 to a maximum of 30 days after cigarettes leave the factories, as is the case in Turkey, Pakistan, Egypt, and the EU. In Turkey, manufacturers pay excise tax revenues on the 15th day of each month for the last month's excise sales. In Egypt, it is on the 30th of each month that the revenues are paid.

Tax credit or refund

The manufacturers file requests to tax authorities for tax refunds or credits for either unused or damaged banderols, or tobacco products returned unsold to the manufacturers. These credits or refunds are granted after the tax authorities verify these requests, with credit often extended for the costs of tax stamps or banderols.

Floor-stock tax

When the manufacturers, wholesalers or the retailers expect a tax increase, they may stock a number of cigarettes to take advantage of the current, lower tax level. If the excise is levied at the manufacturing stage, and the manufacturers declare the production before the new tax becomes effective, then these products may be subject to the old tax, which is often the case by law (Sunley et al., 2000). In order to eliminate this possibility, and its corresponding tax avoidance, the tax law may be changed to enable tax administrators to collect the new tax for the cigarettes that were produced, and kept in stock, before the new tax became effective. Collecting new taxes on cigarettes that are stocked at the manufacturing or wholesale stage could be easy and efficient, but this is often not the case at the retailer level. From an efficiency standpoint, the law can specify that a floor tax can be imposed when the stocks are at a "certain level" and the increase in tax rate is significant. In that case, the tax loss can be covered and higher prices are ensured for those products.

3.3 Summary

STRONG TAX ADMINISTRATION is a requisite for ensuring high compliance effectively and administering tax policies efficiently. Good tax administration requires strong technical capacity supported by a well-designed tax. Given the low price elasticity and low share of excises in retail prices, countries still have room to increase their excises in order to increase revenues while reducing tobacco consumption. However, administrative agencies should be aware of the market conditions and the factors affecting tobacco sales and hence their impact on the revenue stream. These factors should be taken into consideration when a tax policy is designed so that both public health and revenue objectives are achieved. It is a rule of thumb that tax should increase more than the inflation rate and the increases in per capita income level. That would reduce the affordability of cigarettes by increasing retail prices while achieving higher revenues.

A simple and unified specific excise system can be considered a well-designed tax policy in terms of ensuring transparency, easy definability and increasing tax administrations' efficiency. Although countries levy different excise taxes, given economic and political feasibilities, excise systems can be simplified in the short-term and may move towards a unified specific system in the mid to long term.

Compliance with the tax system can be ensured in various ways, including adopting a state of the art monitoring, tracking and tracing system, supported by an increased number of enforcement officers/investigators on the ground. Governments should evaluate these systems based on their needs. Existing evidence suggests that old tax stamps are less effective in deterring illicit or counterfeit cigarette production and trade, but are better than having no tax stamps.

New technologies are emerging that provide better enforcement tools for governments. Evidence shows that the banderole system helped Brazil detect illicit production of domestic cigarettes and generated an additional US$100 million tobacco in excise tax revenue in 2008 (MoF Brazil, 2009). In 2007, the California tax collection agency estimated that annual cigarette tax evasion dropped by 37 percent (from $292 million to $182 million), generating an additional US$110 million in cigarette tax revenue due to increased enforcement and the new high-tech tax stamps (banderole)[24]. Such experiences suggest that the costs of adopting and implementing a new technology can generate more than enough revenues to pay for itself in the revenues collected on products that would have otherwise not been tax-paid.

New technologies should be viewed as tools to enhance enforcement and reduce the size of the illicit market. In order to reduce tax evasion, governments still need to implement other effective measures including employing more enforcement officers supported by strong laws. In Brazil, despite their success in reducing illicit domestic production, illegal trade via Paraguay is an ongoing problem. In Malaysia, the illegal market for cigarettes accounted for 25 percent of the volume of the legal market in 2004. It declined 10 percentage points in 2005, despite a cigarette price increase. Although Malaysia used technologically advanced tax stamps, strong measures taken by the Malaysian government to control the illegal market were believed to be behind the decline in the size of the illegal cigarette market (ERC, 2008). Similarly, the UK achieved a significant reduction in the illicit market by imposing strong measures and investing in enforcement officers on the ground (Johnson, 2009). These measures will be discussed further in the next chapter.

24 California State Board of Equalization (27/06/2007) www.boe.ca.gov/news/newsroom07.htm

New technologies are necessary but not sufficient to minimize non-compliance. Governments with effective tax administration systems also regularly apply other enforcement measures and require producers to keep records (e.g. inputs, stocks, banderoles, shipments) that are periodically inspected by the tax authority.

CHAPTER IV

The political economy of tobacco taxation

EXCISE TAXES are an effective tool for generating higher revenues. In recent years, in addition to satisfying revenue needs, an increasing number of governments have used tobacco tax increases in order to reduce the health and economic burden of tobacco use. Studies have shown that tobacco taxes are the most cost effective way to reduce tobacco consumption. Implementation of a package of price and non-price policies (e.g. banning smoking in public places, banning advertising etc.) is also highly cost-effective (World Health Report 2002, Jha et al. 2006a, Asaria et al. 2007).

However, with respect to the decision to increase tobacco taxes, political considerations have to be taken into account. Such considerations include, but they are not limited to, concerns about the expected impact of a tax increase on: tax evasion (smuggling) and tax avoidance; employment; inflation; affordability of cigarettes and other tobacco products, especially for low income smokers: and the relative prices of foreign and domestic brands. Furthermore, in some countries, a culture of negotiated tax increases has developed between some governments and manufacturers. Manufacturers' responses to tax increases affect governments' expected revenues. Crucial to the success of the tobacco tax policy is an understanding of the political and economic environment in each country.

4.1 Tobacco taxation and public health benefits

Growing evidence clearly shows that as taxes on tobacco products increase, a significant number of premature deaths will be averted as youth are deterred from taking up tobacco use and adult users quit, leading to substantial reductions in the health and economic burden caused by tobacco use.

In India, for example, nearly one million people are expected to die prematurely from a disease caused by smoking by the early 2010s; these include deaths from causes such as heart disease, cancer, respiratory diseases and tuberculosis. Taxes on cigarettes are low in India, while taxes on bidis have historically been close to zero. Significantly increasing these taxes would dramatically reduce the prevalence of tobacco smoking and the death and disease it causes, while at the same time raising substantial government revenues. Research shows that a 10% increase in cigarette prices would reduce cigarette consumption by 3.4% in rural India, while a 10% rise in bidi prices would reduce consumption by 9.2% and 8.5% in rural and urban India, respectively. These price increases would translate to a 1.7% and 11.7% decrease in youth cigarette and bidi smoking prevalence, respectively (John et al., 2010).

In terms of the health impact, a price increase of 52.8% on bidis through increased taxes would avert about 4.6 million premature deaths among current bidi smokers, while a cigarette price increase of 153% through increased taxes would avert an additional 2 million premature deaths among current cigarette smokers. In addition, by deterring the current cohort of Indian youth from initiating smoking, these price increases would prevent an additional 1.6 million premature deaths caused by cigarette smoking and 10.9 million premature deaths caused by bidi smoking.

In Russia, the tax increase based on the prospective tobacco excise law could avert up to 80,000 deaths (about 0.4 percent of the expected tobacco-related mortality in this cohort). However the number of smokers would be reduced only marginally. If Russia chooses to raise tobacco taxes so that they account for 70 percent of the retail price, up to 2.7 million tobacco-related deaths among the current Russian population could be avoided. This would reduce tobacco-related mortality up to 12 percent with an even greater impact possible in the long run. At the same time, the government would collect an additional RUB 153 billion (US$6 billion) in excise tax revenue per year. (Ross et al, 2008).

In Ukraine, a relatively small tax increase that raises the tax to 50 percent of the retail price could reduce the number of smokers by up to 500,000, avert 253,000 deaths (about 3.1 percent of the expected tobacco-related mortality in this cohort), and annually generate about UAH 1.4 billion (US$ 281 million) in

additional excise revenues. If Ukraine were to raise tobacco taxes to 70% of the retail price, the number of smokers would decline by almost two million, and about one million tobacco-related deaths would be avoided in this cohort, reducing tobacco-related mortality by 12 percent. At the same time, the government would collect an additional UAH 4.2 billion (US$ 860 million) in excise tax revenue each year. Taxes in Ukraine are low compared to neighbouring countries, creating an incentive for smuggling duty-paid cigarettes out of the country. Therefore, a tax increase in Ukraine would reduce incentives for illicit cigarette trade and reduce duty-paid sales. However, even if all illegal cigarette exports are eliminated, tax revenue would still increase by UAH 2.6 billion to 3.6 billion (US$ 539 million to US$ 727 million), an increase of about 150 to 200 percent (Ross et al., 2009).

One has to recognize the highly political nature of tobacco control in general, and tobacco taxation in particular, as well as the complex vested interests concerned. Although the exact nature and extent of each actor and their interests may be unique in each country, there are some widely used arguments used to oppose tax increases. These include concerns about the effect of tax increases on tax avoidance activities, smuggling, inflation, employment, poverty and protection of national industry. We turn to these issues now.

4.2 Tax avoidance and tax evasion

One of the challenges tax administrators face is how to sustain the revenue base and flow, especially after a tax increase. The level of expected tax revenues depends on limiting opportunities for tax avoidance and tax evasion, trends in consumption, adoption of other tobacco control policies, and industry responses to tax increases. Tax avoidance and tax evasion can make tobacco products more affordable and more widely available and accessible, especially for youth and low income smokers. Such activities undermine the health impact of higher tobacco taxes and other tobacco control efforts.

Given the structure of the excise tax system and enforcement process, taxpayers are faced with opportunities to reduce their tax payments. Any changes in the tax system will induce different behavioural responses. For example, an increase in tobacco excises may create an incentive to engage in tax avoidance and tax evasion activities by both manufacturers and individuals, depending on enabling environments (e.g. weak law enforcement and long judicial procedures, corruption and weak governance) while encouraging some smokers to reduce consumption (or discouraging others to take it up).

Tax evasion should be distinguished from tax avoidance; tax avoidance is legal, it is a change in economic or other activity, possibly at some cost, in order to reduce tax payments. Tax evasion, however, involves illegal activities to avoid tax payments.

There is a private cost to taking advantage of opportunities that reduce tax payments. This cost may take the form of a change in consumption or purchase behavior, an increasing probability of detection and penalty for evasion, and the real resource costs of effecting avoidance and/or concealing evasion. These costs depend on government policies that can be costly to implement, such as administration and enforcement policies, but also on the setting of tax rates and tax bases.

4.2.1 Tax avoidance

Tax avoidance by consumers involves legal activities such as purchases for personal consumption from a lower-tax jurisdictions or duty-free shops. For example, smokers living in high tax jurisdictions may legally engage in cross-border shopping in neighbouring low-tax jurisdictions, as happens in the US, the EU, and other countries with significant population near borders (e.g. CIS countries, and in Latin America, especially between Brazil and Paraguay (Ramos, 2009)). In some countries, people may also buy cigarettes directly from other types of vendors such as native reservations where some taxes are not applied.

The extent of cross border shopping and/or other tax avoidance activities by individuals can be significant in some countries – for example, in Luxembourg, because of its low taxes and its proximity to large populations in higher tax countries. In practice, however, it is unlikely that individuals will travel long distances at high cost just to buy cigarettes and save a modest amount of money.

The sale of duty-free tobacco products makes cheaper tobacco products more readily available for consumption. This defeats the health purpose of taxation and harms public health by encouraging personal consumption. The WHO FCTC calls for a ban (or restriction) on the sale and import by international travellers of tax and duty-free tobacco products, in order to increase the effectiveness of tobacco taxation in reducing consumption. Eliminating duty free sales of tobacco products will reduce opportunities for tax avoidance. There is growing evidence of government and international actions to ban duty free sales (FCA, 2009). Duty free tobacco product sales have been banned since 1999 to individuals travelling within the EU; banned altogether in Romania (2010); and banned by Bulgaria at land borders with non-EU countries. They were also recently banned altogether in Nepal (2008). Since 2001 Canada has imposed a federal tax on

tobacco products sold in duty free stores (Canadian Cancer Society, 2010).

Just as duty-free tobacco product sales encourage consumption, so do allowances for arriving travellers to bring in tobacco products duty-free and/or tax-free. Although many countries still have a duty-free import allowance of 200 cigarettes (or similar amount for other products), and sometimes even higher, an increasing number of governments are eliminating or reducing the duty-free allowance for arriving travellers. For example, in February 2010, the Hong Kong Special Administrative Region Government announced, "as a means to further protect public health," a reduction in the limit to 19 cigarettes, meaning duty would be required for an unopened package of 20 cigarettes (Hong Kong SAR Government, 2010). Countries like Barbados, Singapore and Sri Lanka do not permit any duty-free allowances for cigarettes. In some EU countries duty-free import allowance is restricted to 40 cigarettes (Bulgaria, Greece, Hungary, Lithuania, Poland Romania and Slovakia).[25] The amount is restricted to 80 cigarettes in Guatemala (Canadian Cancer Society, 2010; European Commission 2009.)

Tax avoidance by manufacturers is less explored in the literature although it does take place worldwide. It involves legal activities such as changing the characteristic of the product, the package, the size of the production plan and the pricing policy. For example, under specific taxation, manufacturers can manipulate the length of the cigarette or the size of the pack to reduce tax payment. In some developing countries where multi-tiered tax systems are in place, we observe various industry responses. In countries where the tier classification is based on price level, for example, Egypt, Pakistan, Philippines, we observe that prices of the brands tend to cluster near the top of each tier. To avoid a higher tax, producers choose a different pricing policy to avoid a tax higher than the one they might face in the presence of a single tax rate.

Some countries apply excise rates that vary with the type of the product and/or the level of production. For example, in Indonesia the tax rates vary by both the type of the product and the level of production. As lower rates apply for lower levels of production, manufacturers can avoid higher taxes by establishing a few smaller companies instead of a large production plant. Tiered tax rates by production scale allow firms to avoid paying the highest tax, increasing profit margins while reducing selling prices. When the tax rate depends on the type of product, manufacturers may re-classify their product so that they are taxed at a lower rate as seen recently in the United States where roll-your-own taxes

25 Applies in those countries (except for Romania) only for arrivals by land or sea (but not air) from non-EU countries (duty-free sales within the EU are banned

increased significantly compared to pipe tobacco taxes, leading to the repackaging of roll-your-own tobacco as pipe tobacco. In general, under differential taxation, there may be many ways to avoid tax. To eliminate tax avoidance, achieving higher revenues and a larger health impact in the process, governments need to close such loopholes in the tax law.

The degree and form of tax avoidance is of concern for several reasons. It constrains government's ability to raise revenue and control consumption through taxation. Tax avoidance affects estimates of the level of smoking and price responsiveness when the analysis is based on sales data that are collected from country cigarette tax receipts. As a tax rate increases, both taxed consumption and avoidance activities change. Any estimate of the effect of tax on consumption will be overstated if it fails to account for the triggered change in avoidance activities.

Governments need to prevent tax avoidance or at least control it. To do this, they must frame tax rules so as to minimize opportunities for avoidance. In practice, as governments amend legislation to close loopholes, tax advisers look for new loopholes in the amended rules. Such loopholes are more likely to arise when the tax structure is overly complex, as is the case in many developing countries. Simplifying the tax structure will help reduce opportunities for tax avoidance as well as monitoring costs per unit of revenue raised.

4.2.2 Tax evasion

Tax evasion usually involves taxpayers deliberately misrepresenting or concealing their true economic activities to the tax authorities in order to reduce their tax liability. For example, importers may evade customs duties and manufacturers may evade domestic consumption taxes by under-invoicing or mis-declaration of the quantity or description of the product. When the duty is ad valorem, under-invoicing will reduce the tax base; when the duty is specific, mis-declaration of quantity is more relevant.

Tax evasion, or illicit trade, involves both smuggling and illicit production. It may involve genuine products or counterfeit. Smuggling is the trade of products through unauthorized routes. It implies total or substantial evasion of customs duties and excises, as well as income taxes. It can be long-distance, large-scale organized smuggling or cross-border smuggling. Large-scale smuggling occurs when large quantities of tobacco products are illegally transported, distributed and sold without paying any tax at all, even in the country of origin. During transport, export goods have in-transit status in which the goods can leave the country of export without being assessed any taxes or duties. In-transit goods are

often temporarily stored in a country other than their final destination as they await onward transfer. Large-scale smugglers often divert cargo at this point. What gives rise to long-distance smuggling are the huge value differences between export prices of major cigarette producing countries and the retail price of legal cigarettes. Because taxes on cigarettes account for a large share of their price – relatively to other products (70-80% in the EU, 50-66% in some low and middle income countries) – and because tobacco products are relatively light, they are especially appealing to smugglers.

Smugglers and legal traders may not always be two distinct groups. Smugglers could be distributors camouflaging their smuggling with legal imports and reducing the costs of their legal imports with contraband (Fausti, 1999; Thursby and Thursby, 2000). Major tobacco multinationals have been the subject of several legal cases worldwide to determine the extent of their involvement: they were accused of supplying the smuggled cigarettes or at least being aware of their illegal destination.[26]

There is some evidence that the availability of duty-free sales of tobacco products has facilitated illicit trade in tobacco products in many countries. The evidence includes government statements, internal tobacco industry documents (an admission from British American Tobacco) and other reports on the issue. (British American Tobacco, 2009; Collin et al., 2004; WHO 2009a; Canadian Cancer Society, 2010). Cigarettes marked for duty-free sales may end up as contraband, often diverted into illegal distribution channels prior to even reaching duty-free stores.

Reports from customs officials in countries have outlined the link between duty-free and illicit trade. For example, according to the Organized Crime and Corruption Reporting Project (OCCRP) (2008) – a watchdog on organized crime and corruption in Eastern Europe and Eurasia – in July 2008, police officials in Romania stated that half of all cigarettes smuggled into the country pass through duty-free shops on the border. The Center for the Study of Democracy – an interdisciplinary public policy institute dedicated to the values of democracy and market economy – published in 2007 a short paper recognizing the link between duty-free shops and increased smuggling in cigarettes in Bulgaria. Bulgaria (except at the airport) and Romania have since banned duty-free tobacco product sales, and reduced the duty-free import limit (for travellers from non-EU countries) from 200 to 40 cigarettes in order to combat illicit trade (Sofia News Agency, 2010; Mediafax, 2010).

26 See, for example, http://www.ash.org.uk/smuggling/ or http://www.public-i.org/

Several approaches have been used to obtain estimates of the extent of tobacco smuggling, including relying on expert opinion, monitoring tobacco trade, comparing tobacco sales with total consumption estimated from survey data and econometric modeling of the determinants of aggregate sales data (Merriman et al, 2000). Joossens et al. (2009) review a variety of estimates and conclude that 11.6% of global cigarette market was illicit in or around 2007. A KPMG study, commissioned by the European Commission, estimated that in 2004 illicit trade represented approximately 8-9% of the EU-25 tobacco market (Joossens et al., 2009).

With regards to econometric studies, there is no existing work on cigarette large-scale smuggling in Europe and only one of bootlegging[27] (Merriman et al., 2000). Most of the evidence comes from North America (Baltagi and Levin, 1986, 1992; Thursby and Thursby, 1991; Galbraith and Kaiserman, 1997). Yurekli and Zhang (2000) reveal significant long distance smuggling in the cigarette market and its importance as a source of revenue lost. Worldwide, it is estimated that in 1995 approximately 6% of total tobacco products sold were smuggled through diversion of untaxed exports from legal to illegal channels (Merriman et al., 2000). Yurekli and Sayginsoy (2010) estimate that 3.4% of global cigarette consumption in 1999 was smuggled.

To evaluate the size of the informal tobacco sector, let alone its composition, is difficult, especially as it evolves over time. In 2000/01 in the UK, most illicit cigarettes were genuine, locally manufactured products, exported to continental Europe and then smuggled back to the UK. In 2002 and 2003, leading UK tobacco manufacturers signed the Memoranda of Understanding under which they agreed to control the supply chain. These agreements were voluntary and non-binding, and as such their effectiveness depended on the manufacturer's goodwill. In 2006, the UK introduced changes in its legislation, setting high penalty payments. As a result of these measures, smuggling of UK genuine brands was reduced. However, this type of smuggling was replaced by smuggling of counterfeit and cheap non-UK brands. Looking at other tobacco products, smuggling in hand rolling tobacco (HRT) remained a serious problem: more than half of HRT consumed in the UK is illegal (ASH, 2009). There is still scope for improving the supply chain control.

Illicit production may involve production of genuine brands by legal manufacturers who declare only a fraction of their production to the tax authorities. This form of tax evasion is prevalent among large cigarette producing countries such as Egypt, India (Bidis), Indonesia, Russia, Pakistan and Philippines.

27 Bootlegging involves the purchase, by individuals or small groups, of tobacco products in low tax jurisdictions, in amounts that exceed customs limits, for resale untaxed in high tax jurisdictions (Joossens et al., 2009).

It may involve production of counterfeit products by illegal domestic manufacturers. This occurs in, for example, Russia and South-East Asia, with most of the counterfeit cigarettes coming from China. In 2007, three reports concerning the discovery of illegal plants for cigarette production in Austria, the Czech Republic, and Slovakia were submitted to the World Customs Organization (WCO, 2007). Strengthening cooperation, exchange of necessary information. and granting greater investigative powers to Customs services may result in dismantling of more illegal manufacturing lines.

It is usually the size and composition of seizures that give us an idea of the composition of the illicit market. However, seizures may not be representative of the illicit market as a whole. Moreover, making comparisons across countries on the basis of seizures is not meaningful, as, for example, customs investigative techniques, reporting procedures and law enforcement differ.

The presence of an illicit market, especially if it is of a considerable size, has an impact on both consumption and tax revenues. If smuggled cigarettes account for a high fraction of the total market, the average price of all cigarettes will fall, leading to an increase in consumption. As illicit tobacco products become more available, their share in individual consumption will increase and the average price paid by smokers will decrease. Apart from affecting consumption by current smokers, the price decrease affects potential future smokers, as individuals are more likely to take up smoking the lower the price. Evidence shows that those who buy illicit tobacco products are more likely to be young and belong to semi-skilled and unskilled occupation groups, as these groups are found to be more price sensitive (West, 2008). As a result, higher consumption will contribute to higher mortality from smoking-related diseases.

High tax increases may provide financial incentives for smuggling, especially when enforcement and tax laws are weak, penalties are small, and it takes a long time to prosecute smugglers. Literature does not provide clear cut results on the effect of commodity tax increase on total sales and tax evasion, in noncompetitive environments (e.g. Thursby et al, 1991; Thursby and Thursby, 2000) or on the relative effects of specific and ad valorem taxes (Delipalla, 2009a, 2009b). It is clear, however, that an increase in penalties or detection probability has a clear negative effect on tax evasion. In practice, corruption often renders control of evasion difficult. Moreover, as corruption reduces the expected cost of smuggling, it encourages it. Some governments have resorted to privatization of tax enforcement to enhance efficiency of the tax system, the assumption being that leakage of revenue will be smaller under a privatized regime. In Bangladesh, for example, a part of Customs administration was privatized as early as 1991.

Governments should require identifying information to be included on all tobacco products produced domestically so as to facilitate tracking and tracing of these products through the distribution process and should work with others in the region to adopt similar requirements. This information would be highly useful in enforcement efforts, and allow Customs to identify illicit products more easily and to identify those higher up in the distribution chain that are responsible. Severe administrative penalties should be imposed on those caught engaging in illicit trade so as to significantly increase the swiftness and severity of these penalties, making them a greater deterrent.

Moreover, measures of the extent of illicit tobacco product availability and pricing should be incorporated into a broader industry surveillance system in each country. Reliable measures would reduce Customs authorities' reliance on the tobacco industry for estimates of the extent of illegal trade in their country.

Spain provides a good example of effective measures to control the supply of smuggled tobacco. Investments in strengthening intelligence, increasing customs activity in border areas, and developing international collaborations targeting smuggling rose from €4 million in 1993/94 to almost €40 million in the period 1996-2000 (Joossens and Raw, 2008). As a result, the market share of smuggled cigarettes fell from 16% to 2%, and tax revenues increased from €2300 million to €5200 million, equivalent to €68 in tax revenue for every €1 spent on anti-smuggling measures (ASH, 2009).

In 2000, the European Commission (EC) took a number of tobacco companies to court accusing them, among other things, of smuggling. In 2001, ten European countries led by Italy joined the lawsuit. In 2004, the case against Phillip Morris International (PMI) was dropped as PMI agreed to pay the EC $1 billion over 12 years and to control future smuggling of its brands. PMI developed a special tracking and tracing system and marked 200 million master cases with unique codes. Italy's illicit trade in cigarettes fell from 15% in the 1990s to 1-2% in 2006 (Joossens and Raw, 2008). Since 2008, PMI introduced tracking and tracing at the carton level in Eastern Europe. Japan Tobacco International (JTI) signed a similar agreement in 2007. In 2009, the UK joined in signing anti-smuggling agreements.

Recognizing the importance of strong international cooperation to eliminate illicit trade in tobacco products, the Parties to the WHO Framework Convention on Tobacco Control (WHO FCTC) created a negotiating body to develop a protocol on illicit trade in tobacco products. Negotiations started in February 2008 and are ongoing. A draft of the text of the protocol will be presented at the

fourth session of Conference of the Parties to the WHO FCTC in November 2010 for their consideration. The current draft of the protocol includes provisions to control the tobacco supply chain, measures to define offences and set sanctions, measures to facilitate international cooperation and data sharing and institutional measures with regards to the Protocol itself. The main elements of the tobacco supply chain section are:[28]

- Licensing (required for all engaged in manufacturing of tobacco products but also in manufacturing equipment, commercial activities, transportation and primary processing of tobacco products)
- Customer identification and verification (due diligence)
- Tracking and tracing (affixing secure and non-removable markings on tobacco products and manufacturing equipment used in the manufacturing of local and imported tobacco products)
- Record-keeping (of activities of those engaged in the commercial sale of tobacco or in the manufacture, sale, distribution, storage, shipment, import or export of tobacco products or manufacturing equipment used in the manufacture of tobacco products)
- Security and preventive measures (to ensure compliance with regulation)
- Banning or ensuring compliance to obligations of the Protocol in the internet and other telecommunication-based modes of sale
- Limiting, licensing or prohibiting tobacco in free-trade areas and for duty-free sales (major sources of illicit tobacco trade).[29]

Although all forms of tax avoidance and tax evasion may affect revenues and tobacco control, policy makers need to know their absolute and relative importance when deciding whether and how to allocate resources to prevent them. For example, when both border crossing and large scale smuggling is present, border crossing might be considered less harmful than smuggling because, although it encourages consumption, causes unnecessary transportation costs, and shifts tax revenues between governments, it is legal if the quantities purchased fall below specified limits. Smuggling, in contrast, is illegal and, apart from encouraging smoking, it may direct revenue to criminal organizations and generate costs associated with violence or law enforcement.

28 Source: http://www.who.int/fctc/inb/en/

29 A recent study demonstrates that the benefits from implementing the protocol in the UK are highly likely to exceed the costs (ASH, 2009).

4.3 Protecting Domestic Brands

Until the mid-1990s, governments in many countries were the sole producers of a variety of products including tobacco products. One of the main reasons for government's involvement was to provide affordable products for mass population. Today, with the exception of a few countries, government owned tobacco industries have been privatized. China, Thailand, Egypt (52% still owned by the government), Viet Nam, Japan (less than 49%), Moldova, and Iran still maintain full or partial control of tobacco manufacturing and distribution. Historically, cigarettes produced by government owned companies have been priced much lower and used lower grades of tobacco than foreign brands.

Currently, governments that impose a differential excise system often levy higher taxes on premium or high price brands, often produced by foreign manufacturers, than they do on lower grade, lower priced brands that are often produced domestically. As taxes increase, premium and high-price brands are expected to generate more stable revenue than the other price bands due to their less price sensitive consumption base. High income smokers are more likely to smoke premium, high price brands and are less responsive to price than are smokers in lower income groups. Given their market share and the high taxes that are applied to them, premium brands generate a relatively high share of total tobacco tax revenues in various countries, as shown in Table 7.

Table 7. Excise revenue by price band, share in tobacco excise revenues and sales, 2008.

	PAKISTAN			EGYPT			TURKEY		
	Excise Mil. Rs**	Share* in Excise Rev.%	Share in Sales %	GST Mil.LE **	Share* in GST Rev.%	Share in Sales %	Excise Mil.TL	Share* in Excise Rev%	Share in Sales %
Premium	11,231	29	10	832	12.2	6.6	3,129	28	20
Mid price	24,266	63	79	990	14.6	14.5	4,396	40	40
Economy	2,744	7	10	4,983	73.2	78.9	3,591	32	41
Total		100	100		100	100		100	100

* Share in tobacco excise revenue.
** Excise revenue includes Federal and State excise duties in Pakistan. Excise revenue is General Sales Tax in Egypt
Sources: Authors' calculations using data from MoF Egypt (2009), FBR Pakistan (2009) and Yurekli et al. (2010)

Governments also have a tendency to keep the prices of tobacco products consumed by the majority of population relatively lower, by either not taxing these products or by keeping the tax rates on these products significantly lower. This is especially the case for bidis and smokeless tobacco in India (Sunley, 2008; Goodchild, forthcoming), papirosy and non-filtered cigarettes in Russia (Ross et al,, 2008), and waterpipes in Egypt (MoF Egypt, 2009). In some cases, due to low consumption level, governments impose either no or very low tax on some products (e.g. loose tobacco). Consequently, as the tax gap increases, consumers switch towards those products, as is the case for example in Viet Nam (Guindon et al., 2010) and Poland (WHO, 2009b).

4.4 Tobacco taxes and affordability

To the extent that governments decide to use higher tobacco taxes to reduce the health and economic consequences of tobacco use, they need to consider more than just the absolute level of taxes. Changes in the prices of other goods and services need to be taken into account. Increases in taxes on tobacco products that do not result in increases in prices that are larger than the increase in other prices will result in a drop in the prices of tobacco products relative to other goods and services (a drop in the real or inflation adjusted price). Rising nominal but falling real prices for tobacco products will lead to increases, not decreases, in tobacco use and its consequences.

The U.S. in the 1970s provides a clear example of this. Despite continually increasing and well disseminated information about the health consequences of smoking, a new health warning label on cigarette packaging and advertising, a ban on broadcast advertising for cigarettes, the spread of restrictions on smoking in public places, including restaurants and workplaces, and an increase of over 53 percent in nominal cigarette prices, per capita cigarette consumption rose by 11.4 percent from 1970 to 1979. The increased consumption was caused by a 16 percent fall in the real prices of cigarettes during this period, largely the result of no increase in the country's specific tax at the national level and small increases in specific taxes in some states that were not enough to keep pace with inflation.

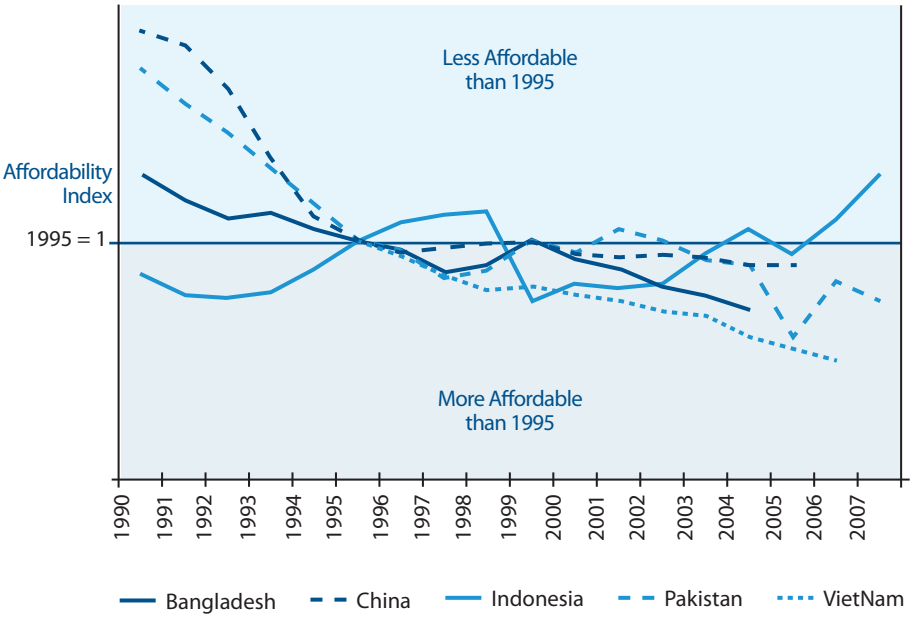
Some countries that use tobacco taxes as a way to reduce tobacco use and improve public health have addressed this problem by adopting policies that automatically increase their specific tobacco taxes so as to keep up with inflation and maintain their real value. Australia, for example, adjusts its cigarette taxes twice each year so that the inflation adjusted value is maintained.

Similarly, the impact of income on tobacco use needs to be considered when evaluating the affordability of tobacco products. In most countries, particularly low- and middle-income countries, consumption of tobacco products increases as incomes increase. As a result, the reductions in tobacco use caused by tobacco tax increases may be more than offset by the increases in tobacco use that result from higher incomes. While this would result in a larger increase in tax revenues than would result from the increased tax alone, it also implies an increase rather than a reduction in tobacco use and its consequences.

This illustrates the importance of reducing the affordability of tobacco products when a key goal of tobacco taxation is to reduce tobacco use, given that affordability depends on both price and income. As Blecher and van Walbeek (2004; 2009) show, in high income countries tax and price increases have generally outpaced growth in incomes, so that the affordability of cigarettes has, on average, declined considerably since 1990, contributing to the reductions in smoking that have occurred in these countries. In contrast, affordability of cigarettes (and almost certainly all other tobacco products) has increased significantly in low and lower middle income countries where tax and price increases have been modest and well below increases in incomes. Figure 12 shows cigarette affordability over time in 5 countries. Using 1995 as the base year, estimated values greater (less) than 1 indicate that cigarettes are less (more) affordable relative to 1995.

Looking at China in particular, Hu et al. (2008) show that, despite a more than doubling of real cigarette prices between 1990 and 2005, cigarettes became more than twice as affordable because of the sharp growth in income in China during this period. Consistent with economic theory, one result of this increased affordability is that the demand for cigarettes in China has become much more inelastic (less sensitive to price changes) over time. Moreover, the increased affordability of cigarettes led to about a nine percent increase in per capita cigarette consumption in China during this period. To date, no country has adopted a policy that automatically adjusts tobacco product taxes in order to prevent them from becoming more affordable over time as incomes increase.

Figure 12. Cigarette affordability in five countries.



NOTE: The affordability index is the ratio of the price of the most popular brand to per capita income.
Sources: WHO GTCR 2009

4.5 Tobacco taxes and tobacco product substitution

Tobacco tax rates that differ across products, and tobacco tax changes that affect prices across products differently, will lead to some substitution among these products (Chaloupka et al., 2000). For example, in Poland cigarette tax increases leading up to the country's accession to the European Union led some smokers to switch from manufactured cigarettes to roll-your-own tobacco (RYO). This led to subsequent increases in the RYO tobacco tax to bring it closer to the tax on manufactured cigarettes, along with further increases in both taxes. However, other tobacco product taxes increased modestly by comparison, leading to further substitution – this time to pipe tobacco, which many consumers used to make cigarettes rather than smoking it in pipes. The most recent Polish tobacco tax increases (in March 2009) addressed this by bringing the pipe tobacco tax up to the same level as the RYO tax.

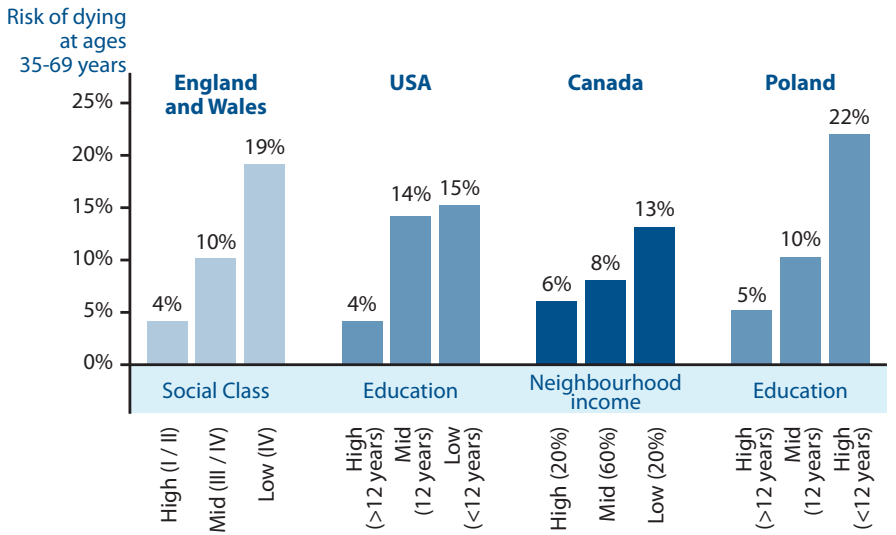
Taxing tobacco products consistently – so that the tax accounts for a comparable share of price on different products and so that tax increases result in proportionate increases in the prices on all products – reduces the potential for substitution among these products. However, one has to take into account the extent to which the price elasticity of demand varies among different tobacco products, which products are close substitutes (cross price elasticities), as well as the starting tax rates on each tobacco product.

As the starting tax rates may be very low (or even zero) for some tobacco products, substantial tax increases to reach a tax share in price that is comparable with other tobacco products may prove to be difficult to implement politically. In India, bidis are consumed by relatively poorer individuals. As a result, bidi consumers are much more sensitive to price changes (e.g. exhibit a much higher price elasticity of demand) compared to cigarette smokers. Different price elasticities of demand among tobacco products mean that the same proportionate change in price across these products will lead to different changes in consumption.

4.6 Tobacco taxes and poverty

Concerns about the burden of tax increases on the poor are another barrier to higher tobacco taxes. Indeed, in some countries, tobacco tax levels and structure are in part designed to produce low prices on some brands or products in order to keep them affordable for poor users. Rather than being "pro-poor", a policy like this results in greater tobacco use among those on lower incomes. As a consequence, the poor end up bearing a disproportionate share of the health and economic burden of tobacco, with differences in tobacco use among the rich and poor accounting for much of observed socioeconomic differences in health (Bobak et al., 2000). Moreover, tobacco use can increase poverty as funds are diverted from spending on basic necessities like food, housing, education and health care to spending on tobacco products (Nargis et al., forthcoming). Figure 13 shows that the health consequences from smoking are much higher among lower socio-economic group in selected countries, leading to higher death in these groups and accounting for much of the health gap between the rich and the poor. This is exacerbated by family income losses that result from missed work time due to diseases and premature death caused by tobacco use and increased spending on health care to treat illnesses caused by tobacco.

Figure 13. Differential health outcome due to smoking.



NOTE: Social inequalities in male mortality in 1996 from smoking. Values are percentages of 35-year-old men dying at ages 35–69 years from smoking if the population death rates of 1996 were to remain unchanged.
Source: Jha et al., 2006b

Whether or not tobacco taxes fall more heavily on the poor depends on several factors, including tax structure and tobacco use patterns for those at different income levels. Tobacco taxes will generally be regressive when prevalence of tobacco use and consumption patterns are similar across income levels and when taxes are similar across tobacco products, given that tobacco taxes paid will account for a greater share of income for the poor than for the rich. The regressivity of tobacco taxes will be more pronounced in countries where tobacco product consumption is greater among the poor than among those on higher incomes. However, tobacco taxes can be less regressive or even progressive in countries where consumption levels increase with income and/or where higher taxes are applied on the products consumed by higher income consumers.

Similarly, whether or not tax increases will fall more heavily on the poor depends on how tobacco use among the poor and rich changes in response to the tax increases. Consistent with economic theory, studies from a growing number of countries generally find that there are considerable differences in price elasticity of tobacco use among socioeconomic groups in a given country, with tobacco use in lower income populations much more sensitive to price than tobacco

use in higher income populations. For example, Sayginsoy et al. (2002) estimate cigarette demand elasticities of -1.33, -1.00 and -0.52 for low, middle and high income populations in Bulgaria. Similarly, van Walbeek (2002) estimates elasticities by income quartile ranging from -1.39 for the lowest quartile to -0.81 for the highest quartile in South Africa. In Indonesia, Adoietomo et al. (2005) estimate cigarette demand elasticities of -0.67, -0.33 and -0.31 for low, middle and high income populations. These estimates imply that a tax increase will reduce tobacco use most among the lowest income populations while having less of an impact on higher income populations.

As lower socio-economic groups have lower response to health education than higher socio-economic groups, increases in the real cost of cigarettes, through taxes, will help reduce differences between different socio-economic groups in prevalence of smoking and smoking-related diseases (e.g. Townsend et al, 1994).

Given these findings, even if the tobacco tax itself is regressive, a tobacco tax increase can be progressive. Based on existing evidence, Nargis and colleagues (forthcoming) summarize this for Thailand, Bulgaria, and Turkey. They show that because of differences in price responsiveness across income groups, increases in cigarette taxes lead to a reduction in the overall share of tobacco taxes paid by the lowest income groups in each country, while the share paid by the highest income groups increases. Moreover, because of the relatively larger reductions in tobacco use among the poor, they will gain more of the health and economic benefits that result from the tax increase.

Moreover, when one accounts for self control problems – that individuals do not make optimal tradeoffs between the immediate gratification they get from consumption now and their long run desires – that result in overconsumption of tobacco products, and accounts for the benefits from reduced consumption, taxes that appear regressive are less so and may even be progressive (Gruber and Koszegi, 2008). This is more likely as there are greater differences between the poor and rich in the responsiveness of tobacco use to price; as the poor are more responsive, the benefits that accrue to them from tax-induced reductions in consumption will be larger than those that go to the rich.

Gruber and Koszegi (2008) demonstrate this for the U.S., where those in the poorest income quartile spend ten times as much of their incomes on cigarettes as do those in the top income quartile, and where they estimate that cigarette demand among the poor is much more responsive to price than demand among the rich. In this case, for plausible assumptions about the extent of time inconsistency in smokers' behavior (the extent of the difference between the taste for immediate gratification and long run preferences), cigarette taxes are quite progressive.

Given that differences in spending on tobacco products by income are less pronounced in most low and middle income countries, and given the evidence from these countries that demand among the poor is more sensitive to price than demand among the rich, tobacco taxes are likely to be even more progressive.

Finally, to the extent that there are continuing concerns about the impact of tobacco tax increases on the poor, governments can address these concerns by using the new revenues from a tax increase in a way that provides greater benefits to the poor. In this sense tobacco taxation becomes a pro-poor policy. A growing number of governments do this by dedicating some portion of tobacco tax revenues to programmes targeting the poor. For example, Egypt is considering increasing taxes on cigarettes and use the revenue generated to widen the coverage of health insurance and improve health services among the poor. Also, following the recent tax increase in Turkey, the government is considering using a portion of the extra revenues to increase health coverage and improve health services, which will benefit the poor.

4.7 Tobacco tax increases and inflation

At times the inflationary impact of cigarette and other tobacco product tax increases is raised as an argument for not increasing these taxes. This may be particularly true in countries where wages and/or a significant share of government spending is indexed to inflation (e.g. for public pension payments) and/or where government policy is to keep inflation low.

The extent to which tobacco product tax increases lead to increases in inflation depends on several factors, most notably the share of these taxes in prices and the weight tobacco prices are given in computing a price index. For example, if taxes account for 25 percent of tobacco product prices, a doubling of the tax (100 percent increase) will increase prices by 25 percent. If the weight given to tobacco products in the price index is three percent, the index will rise by 0.75 percent in response to the tax increase. As tobacco taxes account for a larger share of tobacco product prices, the inflationary impact of a tax increase will be greater. Similarly, as tobacco products are given more weight in computing a price index, a given tax increase will have a greater inflationary effect. In general, for most countries, the inflationary impact of tobacco product tax increases will be relatively small. The generally small impact of tobacco taxes on inflation is illustrated in Table 8 where various combinations of tax levels (as a percent of price) and tobacco weights in the price index are examined.

Table 8. Inflationary impact of tobacco tax increases.

Tax as a share of price			Tobacco weight in price index			Inflationary impact		
Low (<40%)	Medium (40-70%)	High (>70%)	Low (<2%)	Medium (2-4%)	High (4-8%)	Low (<1.0%)	Medium (1-2.5%)	High (>2.5%)
X			X			X		
	X		X			X		
		X	X			X		
X				X		X		
	X			X			X	
		X		X			X	
X					X		X	
	X				X		X	
		X			X			X

NOTE: Midpoints of ranges for tax and tobacco weight are used for computing inflationary impact.
Source: Authors' simulations

Consumer price indices have multiple purposes. They are an important economic indicator for most countries and are often a key determinant of monetary policy. Inflation rates directly impact on interest rates and exchange rates. In many countries, changes in wages, social security benefits, and other payments are tied to inflation, as measured by a price index. In some countries, various taxes are linked to price indices; for example, US income tax brackets are adjusted annually to reflect changes in consumer prices, while Australia and New Zealand regularly increase their cigarette taxes to keep pace with inflation. Price indices are used to provide more accurate comparisons of changes in expenditures, incomes and prices for specific goods over time as well as to allow comparisons across countries.

Given the many uses of consumer price indices and the potential inflationary impact of tobacco tax increases, some governments have developed alternatives that exclude tobacco (and sometimes other goods) for some uses. For example, since 1992, France has excluded tobacco products from the price index used for adjusting minimum wages. Given its utility for indexing various payments, some governments exclude prices for a variety of products they consider unnecessary or inappropriate, including those for alcoholic beverages, gambling, and tobacco. For example, since 1991, Luxembourg has excluded tobacco products, hard liquor, and 'certain services closely linked to sliding wage scales' from its consumer price index. To date, however, while many countries do report consumer price indices

that exclude tobacco products, their most widely used indices – including those used for indexation of wages, pension payments, and other outlays – continue to include tobacco products.

To the extent that concerns about their impact on inflation are a barrier to tobacco tax increases, excluding tobacco products from the basket of goods used in developing key price indices would greatly reduce these concerns. In addition, some have observed that the inclusion of tobacco products in key price indices results in a distorted measure of price for many consumers, particularly in countries where a small and declining minority of the population use these products. Likewise, given that the weights used to compute price indices in many countries change infrequently, the inflationary impact of tobacco product tax increases will be overstated as consumption of these products falls in response to tax increases. Finally, some have suggested that excluding tobacco products from price indices would increase the public health impact of tobacco tax increases by providing less of a cushion for users whose wages or benefit payments are indexed (Alchin, 1995).

4.8 Tobacco taxes and employment

Opponents of tobacco tax increase often suggest that the tax increases will result in job losses, noting that many are employed in tobacco growing, manufacturing and distribution. However, as Warner (2000) has noted, an economic presence of tobacco does not imply an economic dependence on tobacco. Many of the jobs that are counted in estimates of the economic contribution of tobacco are far from dependent on tobacco, but rather involve tobacco in some limited way, often indirectly (e.g. retailers who sell tobacco products, among many other products, or jobs in the heavy equipment sector where farming equipment is produced). Similarly, these estimates include so-called "expenditure induced employment" – jobs that result from spending by those whose incomes are earned in the jobs counted as tobacco related. In general, only jobs in tobacco farming (which are often part time and for which tobacco is one of several crops), tobacco leaf drying and warehousing (which involves very few jobs), and tobacco product manufacturing can be considered truly dependent on tobacco.

In most countries, employment in tobacco dependent sectors has been falling over time as farming techniques have improved and as tobacco product manufacturers have adopted new, more capital intensive production methods. In some countries, increased imports of tobacco leaf and/or tobacco products have contributed to reduced domestic employment in tobacco dependent sectors.

For most countries, the job losses in tobacco dependent sectors that have resulted from these factors exceed any job losses resulting from higher taxes and other tobacco control efforts. (Lei et al., forthcoming).

More importantly, any tobacco dependent jobs lost in response to the reduced demand for tobacco products caused by higher tobacco taxes will be offset by new jobs in other sectors. The money not spent by tobacco users who quit or spend less on tobacco products after a tax increase will not disappear from the economy, but will instead be spent on other goods and services, creating jobs in these sectors. For example in India, the impact of higher taxes on employment is not expected to be significant, given India's growing economy and an expected slow reduction of tobacco-related jobs concurrent with increases in jobs in other sectors as funds once spent on tobacco are spent on other goods and services (John et al., 2010). Similarly, government spending of the new tax revenues that result from a tax increase will create jobs in other sectors. Study after study has demonstrated that increases in tobacco taxes or implementation of other tobacco control measures do not lead to net job losses; in many countries, such efforts result in net increases in jobs as spending is shifted to more labour intensive goods and services (Lei, et al., forthcoming; Jacobs, et al., 2000). This is particularly true for countries where significant shares of tobacco leaf and/or tobacco products are imported, given that much of the money spent on tobacco products will flow out of the country, in contrast to the spending that replaces spending on tobacco in response to tax increases or other tobacco control measures.

Even global tobacco tax increases are unlikely to have a significant impact on tobacco dependent employment in most countries. For a few agrarian countries that do depend heavily on tobacco leaf exports (e.g. Malawi), a sharp, immediate reduction in global demand for tobacco products would lead to significant job losses in the short run. However, given the current upward trend in global demand, higher taxes and other tobacco control measures are not likely to result in a sharp drop in demand in the short run, but rather a slowing of the increase in the near term followed by slowly falling demand in the longer term. This implies that any job losses in these countries will not happen for many years, allowing for a gradual transition from tobacco to other crops.

Countries that are concerned about the impact of tobacco tax increases on domestic employment in tobacco dependent sectors can alleviate these concerns by adopting programmes that would ease the transition from tobacco farming and manufacturing to other economic activity. Crop diversification programmes that support farmers and retraining programmes for those involved in tobacco product manufacturing could easily be funded by a small portion of the new revenues that

result from increases in taxes on tobacco products. In Turkey, for example, the government sponsored "alternative crop programme" that was implemented in anticipation of the privatization of the country's cigarette monopoly has proven effective in moving many tobacco farmers to other crops (Yurekli et al., 2010).

4.9 Tobacco taxation and harm reduction

A wide variety of tobacco products are on the market today, with new products seeming to emerge continuously (see www.tobaccoproducts.org for more details). These products can be grouped into two broad categories – combustible (smoked) products and non-combustible (usually used orally) products. In some countries, a range of both products have been available for many years, and, in a few, manufactured cigarettes account for a relatively small share of overall tobacco use. For example, in India, many more tobacco smokers use bidis (dried tobacco hand-rolled in a tendu leaf) than manufactured cigarettes, while a large portion of the population chews tobacco in the form of paan masala or gutka. In Indonesia, kreteks (clove cigarettes) are widely smoked, while in many Middle Eastern countries, waterpipe smoking of tobacco is common (e.g. hookah or shisha smoking).

In recent years, the variety of available products has expanded considerably, particularly in high-income countries, as the tobacco industry has introduced products that are marketed as "reduced risk" products. Some new cigarettes, for example, claim to reduce the carcinogens contained in their smoke while others deliver considerably less tar, nicotine and/or carbon monoxide. Many new non-combustible products are being similarly marketed, from Swedish Match's "snus" (a moist snuff product that uses tobacco cured in a way that is supposed to significantly reduce cancer causing agents) to the lozenges, dissolvable strips, tobacco chewing gum, and others. At the same time, the number of available non-tobacco products that deliver nicotine has risen, ranging from those intended for smoking cessation (nicotine gum, patches, inhalers, etc.) to the 'e-cigarette' (a battery powered device that delivers nicotine through a mixture of air and water vapor).

Governments have struggled with how to regulate these products and, given experiences with filtered and low-tar and nicotine cigarettes, have been reluctant to allow these products to be marketed as less harmful. Research has clearly demonstrated that smokers' perceptions that low-tar and nicotine cigarettes, for example, were safer than regular cigarettes led many who might have otherwise

quit smoking to continue. Only decades after their introduction did it become clear that the machine measurements of tar and nicotine did not reflect human exposure and that these cigarettes were not safer than regular cigarettes.

The variety of tobacco products available have led some to suggest that tobacco excises be set differentially, so as to more heavily tax those that have greater health risks, while taxing those perceived to be safer at lower levels (or not at all). Harris (1980), for example, suggested that a differential tax based on tar and nicotine content could promote public health by encouraging smokers to move from high tar/nicotine brands to low tar/nicotine brands, assuming that the latter were less harmful. However, given what we now know about the relative risks of these cigarettes, it's clear that such a policy would have done more harm than good as it would have likely kept even more smokers in the market consuming what they perceived to be safer products.

To date, differential taxation of various tobacco products (e.g. for filtered vs. unfiltered cigarettes or for smoked vs. smokeless products) does not seem motivated by interests in promoting harm reduction. Where differential taxes exist, they appear more motivated by efforts to protect domestic producers (e.g. those producing unfiltered cigarettes) from multinational firms (e.g. those producing filtered cigarettes) or by efforts to increase revenues (e.g. by taxing the manufactured cigarettes consumed by higher income, less price sensitive consumers more than the hand-rolled bidis smoked by more price sensitive, lower income smokers).

Recognizing past misrepresentations and current uncertainties, at this point in time, designing a tobacco tax system that favours products perceived to be safer while disfavouring those perceived to be more harmful should await clear evidence of a harm reduction benefit for both the individuals using the products and the public health of the general population.

4.10 Tobacco tax revenues, health expenditure and earmarking

Financing the health-care system is crucial in most countries as it serves to improve health care access and the quality of the services provided. This also reduces the risks of high economic costs due to disease and consequent death. In low- and middle-income countries, financing has become a central issue of health reform, given the large proportion of out-of-pocket expenses on health and the financial constraints this imposes on poor households (Prakongsai et al., 2008).

The use of government tax revenues to pay for health services is a fairly recent innovation in health care financing. Until the mid-twentieth century, the major

alternatives to out-of-pocket payments for health care services were private philanthropies, mutual associations or social insurance plans (e.g. sickness funds) (WHO, 2004). In the case of tobacco products, earmarking (through passing a law) or dedicating (commitment by the Government but no legislation needed, which is more flexible than earmarking) revenues from tobacco taxes for health purposes can be seen as a way to correct for the negative health consequences of tobacco use.

Earmarking can be classified according to two criteria. First, according to the link between the tax and the expenditure it finances: a *strong* or *tight* link implies that all or most of the revenue goes towards financing a particular expenditure, and that the expenditure does not benefit (significantly) from other financing sources (e.g. the general fund). A *weak* or *loose* link implies that only a portion of the proceeds of the tax finances the expenditure in question, and/or the expenditure benefits (significantly) from other financing sources. Second, according to the type of expenditure benefiting, earmarking can be *specific/narrow* (e.g. a service provided by a public enterprise), or *broad/wide* (e.g. social security, education). The main argument against earmarking is that it may introduce rigidities in the budgetary process that limit the use of funds for alternative purposes, discouraging the optimal allocation of resources and hence reducing social welfare.

Buchanan (1963), starting with the median voter-taxpayer as the decision maker in the tax-spending process (instead of the fiscal authority), showed that earmarking can be desirable. If voters are offered a series of public goods/services with each financed by a corresponding tax, the outcome of their choice is likely to reflect their preferences better than voting on a package of expenditures financed by a general fund. Since Buchanan's seminal work, a number of economists have shown why certain types of earmarking can be desirable or indeed observed in practice. For example, Pirttilä (1998) argues that earmarking revenue from a corrective environmental tax to compensate those who suffer the most from such a tax may be desirable. Marsiliani and Renstrom (2000) show that earmarking can act as a commitment mechanism where there is a time-inconsistency problem in environmental tax policy: future politicians can be prevented from eliminating the tax or reducing it because its use is earmarked for a desirable expenditure programme. Along the same lines, Brett and Keen (2000) explain earmarking as a means by which a weak incumbent politician locks in the use of certain tax revenues (from environmental Pigovian taxes) and prevents future politicians from altering that use. Dhillon and Perroni (2001) justify earmarking on the basis that it improves the monitoring of government spending by private individuals.

Earmarking in modern public finance finds its strongest support in the principle of benefit taxation and user fees. According to this principle, tobacco taxes must be paid by those who benefit from tobacco-related health services, a condition that is impossible to satisfy as not all tobacco smokers suffer from tobacco-related diseases, and tobacco tax revenue may not be enough to finance spending needs. It could be argued, however, that the tax can take the form of a compulsory health contribution to finance a health insurance programme for tobacco-related diseases. There are two weaknesses in this argument: first, it is not clear why tobacco-related health services should be financed by a specific insurance scheme instead of a general one covering all health services. For example, Egypt imposes a tax of EGP 0,10 per pack of cigarettes to finance part of a health insurance programme rather than earmarking a specific insurance scheme for tobacco-attributable diseases. Second, health spending under this scheme would have to be narrowly defined; it would exclude, for example, spending on smoking prevention.

Consequently, earmarking or dedicating revenues from tobacco taxes for the health system could make more sense. Revenues from tobacco taxes can be substantial in a number of countries and can provide important resources for health, particularly in low income countries where resources are scarce. WHO estimates show that current revenues (2008 data) from excise taxes can represent more than 50% of government health expenditures in countries like Democratic Republic of Congo, Pakistan or Viet Nam. Even dedicating the resulting revenues of tax increases for health programmes is an efficient way of raising resources internally, addressing at the same time any political opposition to such tax increases. A 50% excise tax increase would increase the excise tax revenues of 22 low-income countries (for which data was available) by 33%. The extra revenue alone would be equivalent to 29% of these country's public health expenditures. Revenues from tobacco excise taxes where consumption is very high are sometimes almost equivalent to what is spent on health by the government. In 2008, cigarette excise tax revenues generated by a 50% excise tax increase were equivalent to 31% and 26% of government health expenditures in Pakistan and Viet Nam respectively (WHO, 2010).

Tobacco taxes are earmarked by a number of governments. For instance, several US states (notably California, Massachusetts, Arizona, and Oregon) and several countries (e.g. Ecuador, Egypt, Estonia, Finland, Iceland, India, Korea, Nepal, and Thailand) earmark part or all their tobacco tax revenues for different purposes. In the case of health programmes, these include mainly tobacco control and/or health promotion. Earmarking tobacco taxes for health purposes is practiced by

more than 20 countries around the world (WHO, 2009c). In California, 57% of the excise tax funds the Children and Families First Trust Fund, 29% is spent on health education, hospital services, physician services and research, and another 2% of the excise funds the Breast Cancer Fund. In the light of the success of an earmarked tobacco tax in California, similar earmarking of part of the state excise on cigarettes also takes place in Kentucky (mainly on cancer research), Louisiana (primarily for tobacco prevention), Massachusetts (mainly on health insurance) and Oregon (mainly for the health fund). Studies from California found, for example, that cigarette consumption has been reduced as a result of increases in both taxes and tobacco-control activities funded by the tax increase (Flewelling et al., 1992; Keeler et al., 1996).

Nepal imposes a 2 paisa health tax per manufactured cigarette (domestically produced or imported). The revenue generated by this tax is earmarked for cancer control. Other types of funded activities include social and health programmes (Argentina, Costa Rica, Jamaica, Panama, Mongolia, Philippines), programmes for the protection of children, the elderly and disabled populations (Costa Rica), education (Costa Rica, Iceland, Korea), emergency care (El Salvador, Paraguay), and sports activities (Colombia, Estonia and to some extent Switzerland). Several Australian states and New Zealand use tobacco tax revenues to fund sporting and artistic events that were previously funded by the tobacco industry.

Thailand may be the best success story to be noted in the case of tobacco (and alcohol) tax earmarking. In 2001, the Government of Thailand passed the Health Promotion Foundation Act, which led to the setting-up of the ThaiHealth Promotion Foundation. ThaiHealth receives 2% of the total national tax revenue on alcohol and tobacco products – equivalent to about US$35 million per year. ThaiHealth acts as a catalyst and supports groups and organizations that are already working on public health issues. It reports directly to the cabinet and parliament each year. The success of ThaiHealth has inspired other countries to adopt or contemplate setting up the same policy. For example, Mongolia and Togo have adopted the same structure as Thai Health and received technical assistance by ThaiHealth in the process of setting up the policy.

Annex Table 5 summarizes tobacco tax revenue earmarking in various countries at the central and sub-central levels of government. As one would expect, the link between revenue and spending is weak, with only a portion of tobacco revenue earmarked to spending programmes in the majority of countries. For example, of the 53 countries currently in the WHO's European region, 9 of them earmark taxes for tobacco control and other public health measures; the average level of

allocation is less than 5 percent of total tax revenue (WHO, 2009c). Moreover, these programmes tend to be broadly defined, for example, health, education, social security. Earmarked funds that support broad health and social services (such as other disease programmes) broaden the political and civil society support base for tobacco control. For example, in Australia, historically, broad political support from the Ministries of Sports and Education helped convince the Ministry of Finance that raising tobacco taxes was possible. Indeed, after earmarked taxes passed, the Ministry of Finance went on to raise tobacco taxes further without earmarking (Galbally, 1997). Only a small number of countries earmark revenues to tobacco control activities and cancer treatment, which could be considered as narrowly defined spending programmes.

Additionally, targeting revenue from tobacco taxes to other health programmes for the poorest socioeconomic groups could produce double health gains—reduced tobacco consumption combined with increased access to and use of health services. In China, a 10 percent increase in cigarette taxes would decrease consumption by 5 percent and would increase government revenue by 5 percent. The increased earnings could finance a package of essential health services for one-third of China's poorest 100 million citizens in 1990 (Saxenian and McGreevey, 1996).

For countries, particularly low and middle income countries where health coverage is low, tobacco excise tax revenues – earmarked or dedicated, depending on political support – can provide an important source for much needed expenditure on health.

CHAPTER V

Best practices

THIS CHAPTER describes best practices for tobacco tax policy, emphasizing the public health impact of tobacco taxes while also recognizing the importance of the revenues generated by the taxes. Based on the accumulated empirical evidence and published literature described above, these best practices represent a roadmap that most countries can readily implement. For many countries, the best practices described here will be considerably different than current tobacco tax practices and will require a transition strategy. Where relevant, the best practices described below include some discussion about effective transition strategies.

Use tobacco excise tax increases to achieve the public health goal of reducing the death and disease caused by tobacco use

Extensive economic and other research has clearly demonstrated the effectiveness of higher tobacco product taxes and prices in reducing tobacco use and its consequences, particularly among the poor and the young. At the same time, tobacco excise tax increases will generate sizable new revenues that will be sustained in the short to medium term. In the long run, continued increases in tobacco taxes coupled with implementation of other evidence-based tobacco control policies and programmes will lead to even larger reductions in tobacco use and its consequences and, eventually, to declining tax revenues.

Set tobacco excise tax levels so that they account for at least 70 percent of the retail prices for tobacco products

Tobacco excise taxes (or other taxes uniquely applied to tobacco products) in nearly all countries account for less than 70 percent of retail prices, with taxes in most accounting for less than half of retail prices. Raising tobacco taxes so that they account for at least 70 percent of retail prices would lead to significant price increases, induce many current users to quit, and deter numerous youth from taking up tobacco use, leading to large reductions in the death and disease caused by tobacco use. At the same time, such tax increases will generate significant increases in tobacco tax revenues. It is important to note that this best practice focuses on tobacco excise taxes (or other tobacco-specific taxes) and not on all taxes applied to tobacco products, given that these are the taxes that lead to increases in the prices of tobacco products relative to the prices of other goods and services and, consequently, to reductions in tobacco use. In countries that have already reached this threshold, further increases in tobacco taxes in line with other practices described below would be appropriate.

Simpler is better

Complex tax structures are more difficult to administer, create more opportunities for tax avoidance and evasion, and are less effective in achieving public health and revenue goals. Simplifying the structure of tobacco excise taxes will ease tax administration, reduce tax avoidance and evasion and enhance revenues, and have a greater impact on tobacco use by reducing incentives to substitute among tobacco products/brands in response to tax increases. In countries with complex tax structures, an appropriate transition strategy involves reducing the variations in taxes over time with the aim of implementing a single uniform tax on a given tobacco product. Countries with multiple tiers based on price should reduce the number of tiers over time, eventually ending up with a single uniform tax. Similarly, those that levy different taxes based on product characteristics should reduce and eventually eliminate these differential taxes.

Rely more on specific tobacco excises as the share of excise taxes in retail prices increases

Greater reliance on specific excise taxes maximizes the impact of tobacco taxes on public health by reducing the gap in prices between premium and low priced alternatives and limiting opportunities for users to switch down in response to tax increases. Applying the same specific tax to all brands of a given tobacco product sends the clear message that all are equally harmful. For countries that currently rely on an *ad valorem* tax or a mix of *ad valorem* and specific taxes, an appropriate first step would be to set a sizable specific tax that applies to all brands with an *ad valorem* tax applied above this. Over time, the *ad valorem* rate could be reduced with greater increases in the specific tax so that the total tax increases as a share of retail price and so that the specific tax accounts for a greater share of the total excise tax.

Rely more on excise taxes than on import duties

The effectiveness of import duties in generating higher revenues and increasing retail prices has been decreasing as countries adopt bilateral, regional, and global trade agreements. Consequently, relying on specific tobacco excises would ensure sustainability of tobacco tax revenues. For countries that currently rely heavily on import duties from tobacco products, an appropriate transition strategy would be to reduce import duties over time while adopting and increasing specific tobacco excises so that total taxes on tobacco products are increasing.

Adopt comparable taxes and tax increases on all tobacco products

Increasing excise taxes on some tobacco products but not on others results in changes in the relative prices of these products that induce substitution towards relatively less expensive products. As a result, the overall reduction in tobacco use is smaller than it would have been had all taxes increased by comparable amounts. Comparable increases in the taxes on all tobacco products maximize the public health impact of tobacco tax increases by minimizing opportunities for substitution. Similarly, increases in taxes on all tobacco products will generate larger increases in tobacco tax revenues than would increases in taxes on selected products.

Eliminate tax and duty free sales of tobacco products

The WHO Framework Convention on Tobacco Control, in Article 6, calls for "prohibiting or restricting, as appropriate, sales to and/or importations by international travellers of tax- and duty-free tobacco products". Doing so increases the public health impact of higher tobacco taxes by raising all tobacco product prices and by reducing opportunities for tax avoidance while at the same time generating additional revenues.

Where revenue increases are a goal, rely on tobacco tax increases to achieve revenue increases

Industry price increases (when taxes are ad valorem) or increases in sales volume will generate increases in tobacco tax revenues, but tax increases are more effective in achieving public health goals and will generate new revenues in the short to medium term. Relying on increases in sales volumes to increase revenues will worsen the public health consequences of tobacco use. Relying on industry price increases to achieve revenue increases results in tobacco tax revenues being less predictable and more unstable over time, given the dependence on industry pricing strategies.

Automatically adjust specific tobacco taxes for inflation

Unless regularly adjusted, the real value of specific tobacco taxes will fall over time as general price levels increase. When this happens, the real value of tobacco taxes revenues will fall and the effectiveness of the tax in reducing tobacco use will be diminished. Governments can avoid this by establishing a mechanism for automatically adjusting specific taxes so as to keep pace with inflation. To date, only Australia and New Zealand have done this. To the extent that inflation is low, an annual adjustment should be sufficient; where inflation is higher, more frequent adjustment would be needed.

Increase tobacco taxes by enough to reduce the affordability of tobacco products

In order to maximize the public health impact of higher tobacco taxes, while at the same time generating higher revenues, governments should raise taxes so as to raise prices and reduce the affordability of tobacco products. In many LMICs, tobacco use increases with incomes and incomes are rising faster than tobacco product prices so that these products are becoming more affordable. In order to reduce affordability, tax increases need to result in real price increases that are higher than the increases in real incomes.

Include tobacco excise tax increases as part of a comprehensive strategy to reduce tobacco use

Governments should adopt a comprehensive tobacco control strategy that includes objectives for reducing adult tobacco use and preventing youth tobacco use. In addition to higher tobacco taxes, such a strategy should include other interventions to reduce tobacco use including, but not limited to, comprehensive smoke-free air policies, total bans on tobacco company marketing activities, strong warnings about the consequences of tobacco use, broad efforts to help current users quit, and mass media public education campaigns. Implementation of a comprehensive strategy to reduce tobacco use leads to greater reductions in the consequences of tobacco use, builds public and political support for higher taxes, and maximizes the effectiveness of tax increases in achieving public health goals.

Use a portion of tobacco tax revenues to support other tobacco control and/or health promotion efforts

Significant increases in tobacco product excise taxes generate substantial new revenues that can be used to support a variety of activities, including other tobacco control interventions and health promotion efforts. Empirical evidence demonstrates that using tax or other revenues to fund tobacco control programmes results in greater reductions in tobacco use than result from a tax increase alone. Experiences in many countries have demonstrated that public support for higher tobacco taxes is greater when at least some of the increased revenues are used to support health-focused programmes. Tobacco taxes in most countries generate hundreds or thousands of times more in revenues than are spent on tobacco control activities, leaving considerable room for increased funding of tobacco control programmes. While hard earmarking of tobacco tax revenues for tobacco control and other health promotion efforts may be infeasible in some countries, soft earmarking should be possible in all countries.

Do not view low taxes and prices for some tobacco products as a "pro-poor" policy

Keeping tobacco taxes and prices low on some products, so as to ensure affordability of these products for the poor, is not a pro-poor policy. Instead, it results in greater tobacco use among the poor, causing them to bear a disproportionate share of the burden of the health and economic consequences of tobacco use and increasing the likelihood of future poverty. High tobacco taxes on all tobacco products will result in greater reductions in tobacco use among the poor and to a progressive distribution of the health and economic benefits that result – a truly "pro-poor" policy.

Do not allow concerns about the regressivity of higher tobacco taxes to prevent tobacco tax increases

While existing tobacco taxes may be regressive given traditional measures of tax incidence, these taxes may be progressive once the greater price sensitivity of the poor and the internalities associated with tobacco use are taken into account. Even using traditional measures of tax incidence, tax increases can be progressive given differences in price responsiveness by income, with higher taxes increasing the overall share of tobacco taxes paid by higher income groups. Countries particularly concerned about the regressivity of tobacco excise taxes might employ an ad valorem tax on top of a high specific tobacco excise. To the extent that concerns about the impact of tax increases on the poor remain, these can be offset by using the revenues generated from a tax increase to support efforts to help poor tobacco users quit, other health promotion efforts targeting the poor, and/or other programmes directed to those in poverty.

Do not allow concerns about employment impact to prevent tobacco tax increases

Reductions in tobacco-dependent employment following tobacco domestic tax increases will be offset by increases in employment in other sectors as spending on tobacco products is replaced by spending on other goods and services. Given the capital intensive nature of tobacco product manufacturing in most countries, it is likely that there will be either no net impact on jobs or even a small increase in jobs following a tax increase. To the extent that there are concerns about job losses in tobacco-dependent sectors, using a portion of new tobacco tax revenues to move tobacco farmers into other crops and/or to retrain those employed in tobacco product manufacturing for work in other sectors would significantly reduce these concerns.

Do not allow concerns about the inflationary impact of higher tobacco taxes to deter tax increases

In most countries, either tobacco taxes are a relatively low share of tobacco product prices or the weight given to tobacco product prices in computing national price indices is low, implying that tobacco tax increases will generally have a small impact on inflation. To the extent that there are concerns about the inflationary impact of a tobacco tax increase given that wages or some government spending may be tied to a price index, governments can reduce these concerns by using a price index that excludes tobacco products, as recommended by the EU and, for example, done in France (for the index used to adjust minimum wages).

Strengthen tobacco tax administrators' capacity to monitor tobacco product markets and evaluate the impact of tobacco tax increases

Regardless of how well the tax system is integrated between the tobacco manufacturers and tax administrators, tax authorities should "trust but verify". To accomplish this, a well established monitoring system should be put in place that employs new technologies for monitoring the production and distribution of tobacco products and that includes physical control over these products as they move through the distribution chain. In addition, tax authorities should audit taxpayer account books periodically. Where one does not already exist, a tobacco excise department should be established. This department should collaborate with Customs in order to minimize non-compliance and monitor trade. It should also maintain and update a comprehensive database for use in assessing tobacco product markets, conducting analyses of demand for tobacco products, and evaluating current tobacco excise taxes and the impact of increases in these taxes. Such efforts will be most effective when done in cooperation and collaboration with tax authorities from neighbouring countries and regional and global organizations.

Adopt new technologies to strengthen tobacco tax administration and minimize tax avoidance and evasion

Tax administrators should adopt up-to-date technologies in order to increase the efficiency of tax collection and minimize tax avoidance and evasion. These new technologies include more sophisticated, harder to counterfeit tax stamps and tracking-and-tracing systems that can be used to follow tobacco products through the distribution chain. Tax authorities should be able to assess production levels and accurately estimate manufacturers' tax liabilities, independent of claims filed by tobacco manufacturers. Adoption of these technologies could be financed by small increases in tobacco excise taxes, when needed; in most countries, it is likely that the adoption of these technologies would more than pay for itself through the revenues collected on products for which taxes would otherwise not have been paid.

Strengthen tobacco tax administrators' capacity by licensing all involved in tobacco product manufacturing and distribution

Licensing of all involved in tobacco production and distribution facilitates monitoring of tobacco product markets, makes it easier to identify illicit tobacco products, and increases administrators' ability to identify and penalize those engaged in tax evasion. This is particularly true when done in combination with the adoption of the technologies discussed above.

Ensure certain, swift and severe penalties for those caught engaging in illicit trade in tobacco products

Economic theory and empirical evidence demonstrates that an increase in the expected penalty for illegal behavior reduces crime. Strong tobacco tax enforcement will raise the likelihood that those engaging in illicit trade in tobacco products will be caught, while high administrative penalties will raise the swiftness and severity of the punishment for such illegal activity. Stronger enforcement efforts would almost certainly more than pay for themselves through the increased taxes collected from previously untaxed products. Countries that have significantly increased enforcement efforts and raised penalties have effectively reduced illicit trade in tobacco products. This is particularly true when they "go after the big fish" – those running the illicit operation – rather than focusing on those at the end of the distribution chain.

Conclusions

Tobacco excise taxes are a powerful tool for protecting public health while at the same time an efficient source of government revenues. The best practices identified above should help governments in maximizing the impact of tobacco taxes in reducing tobacco use and its consequences, while at the same time enhancing the revenue generating capacity of these taxes. As governments begin to make the transition from their current practices to the "best practices", much will be learned and best practices will be refined.

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ANNEX

Figure 1.
WHO FCTC Article 6: Price and Tax Measures to Reduce the Demand for Tobacco

1. The Parties recognize that price and tax measures are an effective and important means of reducing tobacco consumption by various segments of the population, in particular young persons.
2. Without prejudice to the sovereign right of the Parties to determine and establish their taxation policies, each Party should take account of its national health objectives concerning tobacco control and adopt or maintain, as appropriate, measures which may include:

- Implementing tax policies and, where appropriate, price policies, on tobacco products so as to contribute to the health objectives aimed at reducing tobacco consumption; and
- Prohibiting or restricting, as appropriate, sales to and/or importations by international travellers of tax- and duty-free tobacco products

3. The Parties shall provide rates of taxation for tobacco products and trends in tobacco consumption in their periodic reports to the Conference of the Parties in accordance with Article 21.

Figure 2.
WHO FCTC Article 15: Illicit Trade in Tobacco Products

1. The Parties recognize that the elimination of all forms of illicit trade in tobacco products, including smuggling, illicit manufacturing and counterfeiting, and the development and implementation of related national law, in addition to subregional, regional and global agreements, are essential components of tobacco control.

2. Each Party shall adopt and implement effective legislative, executive, administrative or other measures to ensure that all unit packets and packages of tobacco products and any outside packaging of such products are marked to assist Parties in determining the origin of tobacco products, and in accordance with national law and relevant bilateral or multilateral agreements, assist Parties in determining the point of diversion and monitor, document, and control the movement of tobacco products and their legal status. In addition, each Party shall:

- require that unit packets and packages of tobacco products for retail and wholesale use that are sold on its domestic market carry the statement: *"Sales only allowed in (insert name of the country, subnational, regional, or federal unit)"* or carry other effective marking indicating the final destination or which would assist authorities in determining whether the product is legally for sale in the domestic market; and
- consider, as appropriate, developing a practical tracking and tracing regime that would further secure the distribution system and assist in the investigation of illicit trade.

3. Each Party shall require that the packaging information or marking specified in paragraph 2 of this Article shall be presented in legible form and/or appear in its principal language or languages.

4. With a view to eliminating illicit trade in tobacco products, each Party shall:

- Monitor and collect data on cross-border trade in tobacco products, including illicit trade, and exchange information among customs, tax and other authorities, as appropriate, and in accordance with national law and relevant applicable bilateral or multilateral agreements;
- enact or strengthen legislation, with appropriate penalties and remedies, against illicit trade in tobacco products, including counterfeit and contraband cigarettes;
- take appropriate steps to ensure that all confiscated manufacturing equipment, counterfeit and contraband cigarettes and other tobacco products are destroyed, using environmentally-friendly methods where feasible, or disposed of in accordance with national law;
- adopt and implement measures to monitor, document and control the storage and distribution of tobacco products held or moving under suspension of taxes or duties within its jurisdiction; and
- adopt measures as appropriate to enable the confiscation of proceeds derived from the illicit trade in tobacco products.

5. Information collected pursuant to subparagraphs 4(a) and 4(d) of this Article shall, as appropriate, be provided in aggregate form by the Parties in their periodic reports to the Conference of the Parties in accordance with Article 21.

Table 1. Countries applying different types of taxes with tiers or at a uniform rate.

Type of tax (Total number of countries 155)					
Specific (51)		Ad Valorem (47)		Mix (47)	
Tiers (21)	Uniform (30)	Tiers (6)	Uniform (41)	Tiers (6)	Uniform (41)
Bosnia, Brazil, Belarus, Croatia, Egypt, Fiji, Ghana, India, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Nepal, New Zealand, Papua New Guinea, Philippines, Republic of Korea, Sri Lanka, Tajikistan, Tanzania, Uzbekistan.	Albania, Algeria, Andorra, Armenia, Australia, Azerbaijan, Barbados, Belize, Botswana, Brunei, Canada, Colombia, Cuba, Georgia, Haiti, Jamaica, Japan, Lesotho, Malawi, Mauritius, Namibia, Norway, Singapore, South Africa, Suriname, Swaziland, Trinidad & Tobago, Uganda, Uruguay, USA.	Angola, Bangladesh, Burkina Faso, Côte d'Ivoire, Myanmar, Senegal	Bolivia, Burundi, Cambodia, Cameroon, Chile, Costa Rica, Congo, Ecuador, El Salvador, Ethiopia, Gabon, Guatemala, Guinea, Guyana, Honduras, Iran, Laos, Lebanon, Liberia, Lybia, Mali, Mauritania, Mexico, Mozambique, Nicaragua, Niger, Nigeria, Panama Paraguay, Peru, Rwanda, Sierra Leone, Sudan, Togo, Turkey, Turkmenistan, Venezuela, Viet Nam, Yemen, Zambia, Zimbabwe.	China, Madagascar, Moldova, Pakistan, Russia, Ukraine.	Argentina, Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Dominican Republic, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Jordan, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Montenegro, Morocco, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Thailand, Tunisia, UK.

NOTES:
1- Out of the 155 countries for which there are data in TMA, 10 countries had no excise
2- The following countries imposed a minimum tax in addition to their statutory rates: the 27 EU countries, Israel, Russia, Switzerland, Turkey, Turkmenistan and Ukraine.
Source: TMA (2009)

Table 2. Different bases for tiered systems around the world.

Differential /Tiered Excise taxes on cigarettes			Number of countries
Total covered			156
With tiers			32
Base of tiers	Retail price		11
	Producer price		2
	Sales volume		1
	Production volume		1
	Type –	filter/non filter	12
	Type –	hand/machine made	2
	Type –	kretek/white cigrette	1
	Packaging	soft/hard	3
	Cigarette length		4
	Trade	domestic/imported	1
	Weight (tobacco content in cigarette)		1
	Leaf content (domestic/imported)		3

NOTES: Of the 155 countries with available data in TMA, 10 countries has no excise.
Some countries differentiate based on more than on criteria.
8 countries differentiate their excises based on more than 1 criteria
Source: Authors' calculations using data from TMA (2009)

Table 3. Cigarette Price, Excises, and Total Tax as a Percentage of Price in 2008, by Income Group[§,]

Country	Price in USD*	Specific Excise	Ad Valorem Excise	Total tax share[†]
Low-income economies				
No excise				
Afghanistan	0.51	0.00%	0.00%	7.79%
Benin	1.06	0.00%	0.00%	21.67%
São Tome and Principe	1.31	0.00%	0.00%	36.55%
Average[‡]	0.96	0.00%	0.00%	22.00%
Specific only				
Gambia	0.36	30.00%	0.00%	62.05%
Ghana	1.16	13.33%	0.00%	29.30%
Kenya	1.54	41.67%	0.00%	55.46%
Kyrgyzstan	0.61	14.17%	0.00%	30.83%
Malawi	1.03	37.33%	0.00%	51.50%
Nepal	0.84	13.38%	0.00%	24.89%
Papua New Guinea	4.21	26.29%	0.00%	46.92%
Uganda	0.51	44.00%	0.00%	62.97%
United Republic of Tanzania	1.09	18.03%	0.00%	34.69%
Uzbekistan	0.50	14.87%	0.00%	31.54%
Average[‡]	1.19	25.31%	0.00%	43.02%

Ad valorem only				
Bangladesh	0.38	0.00%	52.00%	67.00%
Burkina Faso	1.06	0.00%	4.53%	19.79%
Burundi	0.49	0.00%	46.08%	53.92%
Cambodia	0.30	0.00%	10.67%	19.76%
Central African Republic	0.64	0.00%	12.31%	28.46%
Chad	1.06	0.00%	13.35%	33.27%
Comoros	2.83	0.00%	17.73%	19.58%
Côte d'Ivoire	1.49	0.00%	16.35%	26.30%
Eritrea	1.63	0.00%	44.64%	55.36%
Ethiopia	0.44	0.00%	44.48%	56.03%
Guinea	0.39	0.00%	11.05%	37.09%
Guinea-Bissau	2.12	0.00%	2.69%	18.42%
Laos	0.57	0.00%	32.26%	41.35%
Liberia	0.78	0.00%	5.73%	39.84%
Madagascar	0.75	0.00%	50.65%	67.32%
Mali	1.49	0.00%	5.28%	20.53%
Mauritania	1.35	0.00%	20.00%	34.49%
Mozambique	0.60	0.00%	33.67%	48.20%
Niger	1.06	0.00%	6.45%	22.95%
Nigeria	1.89	0.00%	27.21%	31.97%
Rwanda	0.89	0.00%	35.56%	57.37%
Senegal	1.27	0.00%	12.54%	27.79%
Sierra Leone	0.16	0.00%	25.04%	41.73%
Togo	1.06	0.00%	15.00%	30.33%
Viet Nam	0.65	0.00%	35.81%	44.90%
Yemen	0.75	0.00%	47.37%	47.37%
Zambia	1.14	0.00%	30.61%	44.41%
Zimbabwe	0.40	0.00%	34.29%	42.86%
Average‡	0.99	0.00%	24.76%	38.51%
Both excises				
Congo	0.94	14.67%	13.82%	30.92%
Pakistan	0.23	34.46%	4.24%	52.49%
Average‡	0.58	24.56%	9.03%	41.70%

Lower-Middle Income Economies

No excise				
Kiribati	5.54	0.00%	0.00%	50.00%
Maldives	1.56	0.00%	0.00%	30.00%
Marshall Islands	2.50	0.00%	0.00%	40.00%
Average‡	3.20	0.00%	0.00%	40.00%
Specific only				
Albania	1.48	30.77%	0.00%	49.95%
Algeria	0.98	53.14%	0.00%	67.67%
Armenia	1.63	16.83%	0.00%	31.74%
Azerbaijan	0.87	5.14%	0.00%	21.83%
Colombia	0.80	23.80%	0.00%	34.31%
Egypt	0.49	59.27%	0.00%	59.27%
Georgia	0.60	40.00%	0.00%	55.25%
India	1.65	43.98%	0.00%	55.09%
Lesotho	2.36	25.28%	0.00%	38.32%
Micronesia (Federated States of)	1.75	34.29%	0.00%	39.00%
Mongolia	0.39	27.98%	0.00%	37.07%
Namibia	2.47	28.78%	0.00%	41.83%
Philippines	0.53	43.52%	0.00%	54.23%
Samoa	2.69	49.49%	0.00%	62.53%
Sri Lanka	2.83	58.63%	0.00%	71.67%
Swaziland	3.44	12.03%	0.00%	32.03%
Tonga	3.56	39.47%	0.00%	52.52%
Vanuatu	5.68	12.50%	0.00%	61.11%
Average‡	1.90	33.60%	0.00%	48.08%

Ad valorem only				
Angola	0.67	0.00%	15.80%	37.05%
Bolivia	0.78	0.00%	29.50%	41.00%
Bosnia and Herzegovina	1.42	0.00%	41.97%	56.50%
Cameroon	1.06	0.00%	5.60%	21.74%
Cape Verde	2.52	0.00%	3.25%	21.72%
Congo	0.89	0.00%	16.32%	32.21%
Djibouti	0.68	0.00%	43.51%	43.51%
Ecuador	2.20	0.00%	53.57%	64.29%
Guatemala	1.29	0.00%	46.00%	56.71%
Guyana	1.75	0.00%	13.58%	27.37%
Honduras	0.95	0.00%	28.00%	41.05%
Iran (Islamic Republic of)	1.32	0.00%	5.13%	19.16%
Iraq	0.63	0.00%	8.53%	22.75%
Myanmar	0.81	0.00%	75.00%	75.00%
Nicaragua	1.06	0.00%	7.75%	23.15%
Paraguay	0.20	0.00%	9.74%	18.83%
Peru	1.27	0.00%	25.21%	42.95%
Sudan	0.97	0.00%	58.91%	71.95%
Turkmenistan	2.12	0.00%	30.00%	43.04%
Average‡	1.19	0.00%	27.23%	40.00%
Both excises				
China	0.73	1.20%	20.45%	36.18%
Dominican Republic	2.82	26.00%	20.00%	62.00%
El Salvador	1.40	7.14%	9.19%	31.38%
Indonesia	1.14	5.60%	38.64%	52.64%
Jordan	1.97	22.86%	31.99%	68.64%
Macedonia	1.61	2.86%	21.23%	39.34%
Morocco	2.16	0.57%	50.05%	66.36%
Republic of Moldova	0.58	2.00%	3.00%	21.67%
Syrian Arab Republic	0.62	3.00%	12.30%	30.30%
Thailand	1.29	2.22%	55.02%	63.78%
Tunisia	1.30	2.35%	47.33%	64.94%
Ukraine	0.39	20.00%	8.74%	45.40%
Average‡	1.33	7.98%	26.49%	48.55%

Upper-Middle Income Economies

No excise				
Cook Islands	6.02	0.00%	0.00%	64.84%
Grenada	2.96	0.00%	0.00%	30.38%
Nauru	3.05	0.00%	0.00%	62.05%
Niue	4.63	0.00%	0.00%	66.25%
Palau	3.50	0.00%	0.00%	57.14%
Saint Lucia	3.70	0.00%	0.00%	14.22%
Average‡	3.98	0.00%	0.00%	49.15%
Specific only				
Belarus	0.86	8.00%	0.00%	23.25%
Belize	3.50	25.71%	0.00%	34.81%
Botswana	2.33	38.97%	0.00%	48.06%
Brazil	1.03	28.73%	0.00%	58.39%
Croatia	2.91	42.67%	0.00%	60.70%
Cuba	0.30	87.14%	0.00%	87.14%
Dominica	1.40	11.64%	0.00%	49.43%
Fiji	1.30	76.94%	0.00%	76.94%
Jamaica	5.05	29.63%	0.00%	45.15%
Kazakhstan	0.75	8.89%	0.00%	19.60%
Mauritius	2.05	67.69%	0.00%	80.74%
St. Vincent and the Grenadines	2.00	1.67%	0.00%	28.75%
Seychelles	3.98	75.76%	0.00%	75.76%
South Africa	2.04	32.44%	0.00%	44.72%
Suriname	1.82	6.40%	0.00%	42.19%
Uruguay	1.85	47.79%	0.00%	65.82%
Average‡	2.07	36.88%	0.00%	52.59%

Ad valorem only				
Argentina	1.11	0.00%	60.90%	67.50%
Chile	2.07	0.00%	60.40%	76.37%
Costa Rica	1.35	0.00%	44.22%	55.72%
Gabon	2.12	0.00%	5.91%	21.17%
Lebanon	1.33	0.00%	33.38%	44.01%
Libyan Arab Jamahiriya	0.80	0.00%	1.96%	1.96%
Mexico	2.07	0.00%	52.17%	65.22%
Panama	1.96	0.00%	28.26%	43.52%
Saint Kitts and Nevis	1.85	0.00%	10.45%	30.31%
Turkey	1.97	0.00%	58.00%	73.25%
Venezuela	3.96	0.00%	70.00%	78.26%
Average‡	1.87	0.00%	38.70%	50.66%
Both excises				
Bulgaria	1.98	29.82%	40.50%	86.98%
Latvia	2.93	24.55%	32.20%	72.01%
Lithuania	1.83	35.27%	20.00%	71.23%
Malaysia	2.60	40.00%	3.56%	48.32%
Montenegro	0.84	3.33%	26.00%	43.86%
Poland	1.94	34.49%	41.32%	93.84%
Romania	2.22	32.71%	25.00%	73.68%
Russian Federation	0.51	16.00%	5.50%	36.75%
Serbia	0.95	16.10%	33.00%	64.35%
Average‡	1.76	25.81%	25.23%	65.67%

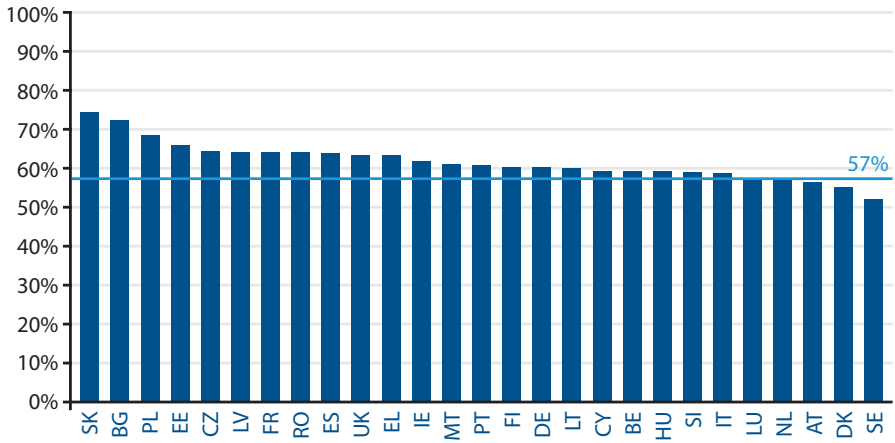
High Income Economies

No excise				
Antigua and Barbuda	2.56	0.00%	0.00%	31.37%
Bahrain	1.60	0.00%	0.00%	33.33%
Kuwait	1.70	0.00%	0.00%	34.04%
Oman	1.56	0.00%	0.00%	33.33%
Qatar	1.65	0.00%	0.00%	33.33%
Saudi Arabia	1.60	0.00%	0.00%	33.33%
United Arab Emirates	1.77	0.00%	0.00%	30.77%
Average‡	1.78	0.00%	0.00%	32.79%
Specific only				
Australia	6.65	53.02%	0.00%	62.11%
Barbados	5.50	34.18%	0.00%	48.84%
Brunei Darussalam	1.17	71.43%	0.00%	71.43%
Canada	6.48	57.56%	0.00%	64.63%
Japan	3.31	58.29%	0.00%	63.29%
New Zealand	5.90	57.77%	0.00%	68.88%
Norway	10.14	52.68%	0.00%	72.68%
Republic of Korea	1.98	52.90%	0.00%	61.99%
Singapore	8.06	60.69%	0.00%	67.23%
Trinidad and Tobago	2.22	23.64%	0.00%	36.69%
United States of America	4.58	31.55%	0.00%	36.57%
Average‡	5.09	50.34%	0.00%	59.48%
Ad valorem only				
Bahamas	4.29	0.00%	24.62%	24.62%
Equatorial Guinea	2.12	0.00%	19.39%	35.36%
Average‡	3.21	0.00%	22.00%	29.99%

Both excises				
Austria	5.57	13.35%	43.00%	73.01%
Belgium	5.79	7.66%	52.41%	77.43%
Cyprus	3.92	14.54%	44.50%	72.08%
Czech Republic	3.00	35.52%	28.00%	79.48%
Denmark	6.24	38.58%	13.61%	72.19%
Estonia	2.88	31.25%	31.00%	77.50%
Finland	6.12	6.88%	52.00%	76.91%
France	7.38	6.03%	57.97%	80.39%
Germany	6.55	35.15%	24.66%	75.77%
Greece	4.18	3.67%	53.83%	73.47%
Hungary	3.02	29.08%	28.30%	74.05%
Iceland	5.52	38.65%	12.68%	71.00%
Ireland	11.27	43.28%	18.26%	79.24%
Israel	5.00	5.00%	53.68%	72.10%
Italy	5.98	3.15%	54.74%	74.56%
Luxembourg	4.45	9.62%	47.44%	70.10%
Malta	5.29	11.58%	48.70%	75.53%
Netherlands	6.12	39.65%	20.87%	76.49%
Portugal	4.94	36.48%	23.00%	76.83%
Slovakia	2.45	49.74%	24.00%	89.70%
Slovenia	3.06	15.00%	43.21%	74.88%
Spain	4.18	3.67%	57.00%	76.64%
Sweden	5.63	14.09%	39.20%	73.29%
Switzerland	6.20	30.00%	25.00%	62.06%
United Kingdom	7.64	42.77%	24.00%	79.82%
Average[‡]	5.30	22.58%	36.84%	75.38%

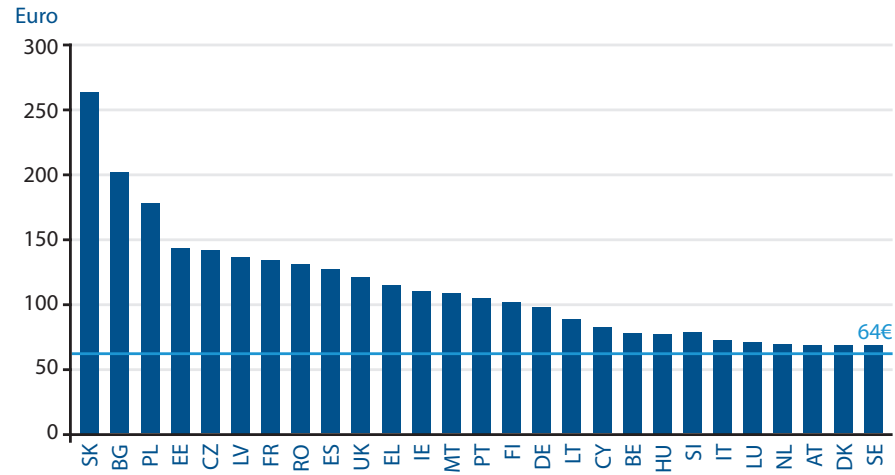
NOTES:
* Price of the most sold brand in the country converted into US dollars using official (principal or market) exchange rates at end of time period;
[†] total tax share includes specific excise, ad valorem excise, value added tax (VAT), imported tax duty (if the most popular brand in the country is imported), and others (if applicable);
[‡] un-weighted arithmetic average;
[§] July 2008 World Bank classification of countries by income.
Source: Authors' calculations using data from WHO GTCR 2009 (price and tax), IMF (official exchange rate) – except for Myanmar (unofficial exchange rate from the CIA World Factbook)

Figure 3. Excise tax share as % of Retail Selling Price, EU, January 2010.



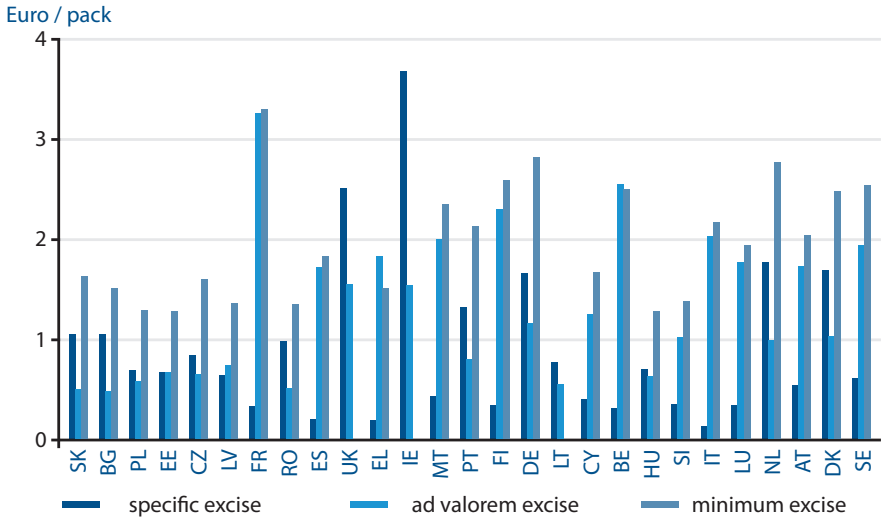
Source: Authors' calculations using data from the European Commission, Taxation and customs Union

Figure 4. Excise yield on MPPC (€ / 1000), EU, January 2010.



Source: Authors' calculations using data from the European Commission, Taxation and Customs Union

Figure 5. Excises applied (€ / 1000), EU, January 2010.



Source: Authors' calculations using data from the European Commission, Taxation and Customs Union

EU countries abbreviations:

AT	Austria	ES	Spain	MT	Malta
BE	Belgium	FI	Finland	NL	Netherlands
BG	Bulgaria	FR	France	PL	Poland
CY	Cyprus	HU	Hungary	PT	Portugal
CZ	Czech Republic	IE	Ireland	RO	Romania
DE	Germany	IT	Italy	SE	Sweden
DK	Denmark	LT	Lithuania	SI	Slovenia
EE	Estonia	LU	Luxembourg	SK	Slovakia
EL	Greece	LV	Latvia	UK	United Kingdom

Table 4. Price elasticities estimates (η_p) – Summary

Countries-Province/ Authors	Data/Year	Results
Argentina Rozada (2006)	Monthly data Jan 1996 to June 2004	η_p =-0.265
Bolivia Alcaraz (2006)	Yearly data 1988-2002	η_p =-0.85
Brazil Iglesias (2006)	Quarterly data 1991-2003	η_p =-0.25 to -0.279
Bulgaria Sayginsoy, Yurekli, de Beyer (2002)	Living Standards Measurement Study household survey of 1995	η_p = -0.8
Chile Debrott (2006)	Quarterly data 1993-2003	η_p =-0.21 to -0.45
China Mao ZZ, Jiang, JL (1997) Sichuan province	Aggregate times series 1981-1993	η_p =-0.47 to -0.8
China Mao ZZ, Jiang, JL (1997) Sichuan province	Cross section 1995	η_p =-0.69
China Hu TW, Mao Z (2002)	Aggregate times series 1980-1997	η_p =-0.54 to -0.64
China Lance, Akin, Loh and Dow (2004)	Micro-level data, survey, 1993 and 1997 panels (9 Provinces)	η_p =-0.007 to -0.08
China Mao Z, Hu TW, Yang GH (2005)	Cross sectional 2002	η_p =-0.154
China Mao Z, Hu TW, Yang GH (2005)	Aggregate times series 1980-2002	η_p =-0.18 to -0.61
China Bai Y, Zhang Z (2005) Provincial and special municipalities	Pooled cross-section/ time series 1997-2002	η_p =-0.84
China Mao Z, Yang GH, Ma H. (2003)	Cross section 1998 (16 counties)	η_p =-0.51
China Bishop, J. A.; Liu, H. Y.; Meng, Q. (2007)	1995 Chinese Household Income Project	η_p = -0.47 to -0.51
Egypt Nassar (2001)	Cross sectional data on family budget 1994/1995 and 1995/1996 surveys	η_p = -0.27 to -0.82

Estonia Taal et al (2004)	Monthly data taken from - Household income and expenditure study be Emro 1992 to 1999 - Statistical Office of Estonia 1996 to 1999	η_p = -0.32
Europe (Region) Gallus, S.; Schiaffino, A.; La Vecchia, C.; Townsend, J.; Fernandez, E. (2006)	2000, Tobacco Control Country Profiles (TCCP) Data.	η_p =-0.4 to -1.00
India Bhall et al (2005) Not published	- National Sample Survey Organisation's National Sample Survey 1983 and 1999 - National Family Health Survey for 1998-1999	Cigarettes: η_p =-0.79 to -0.85 Bidis: η_p =-0.58 to -0.83
India John, R. M. (2008)	1999-2000 NSSO Survey	Bidis: η_p = -0.86 to -0.92 Cigarettes: η_p = -0.18 to -0.41
Indonesia Adioetomo, Djutaharta, Hendratno (2001)	1999 National Socio-economic Survey data	η_p = -0.61
Indonesia Djutaharta, Surya, Pasay, Hendratno, Adioetomo (2002)	1- Yearly data: 1970-2001 2- Monthly data: January 1996- June 2001	η_p = -0.32 to -0.57
Indonesia Adoietomo et al. (2005)	1999 National Socio-Economic Survey (Susenas), collected by the Central Bureau of Statistics.	η_p =-0.61
Malaysia Ross, H.; Al-Sadat, N. A. M. (2007)	1990-2004	η_p = -0.077 to -0.76
Maldives InfoGlobal consultants (2002)	Monthly data December 1997 to October 2000.	η_p = -1
Myanmar Kyaing (2003)	Household level data (2000)	η_p = -1.619
Morocco Aloui (2003)	Aggregate yearly data 1965 to 2000	η_p = -0.51 to -1.54
Nepal Karki (2003)	Household level data (2003)	η_p = -0.886
Russia Ogloblin et al. (2003)	Household data from national surveys 1996 and 1998	Price elasticity of the decision to smoke = -0.085 to -0.628
Russia Lance, Akin, Loh and Dow (2002)	Longitudinal household surveys, 1992-2000	η_p = – 0.02 to – 0.176

South Africa Berg and Kaempfer (2001)	Household survey, 1997 (6500 black households and 1350 white households)	η_p = -0.8 to -1.79
South Africa Van Walbeek (2002)	The Income and Expenditure household surveys of 1990 and 1995	η_p = -0.81to -1.39
Sri Lanka Arunatilake (2001)	Monthly time series data 1999 to 2000	η_p = -0.227 to -0.908
Sri Lanka Arunatilake (2002)	Household level data 1999/2000	η_p = -0.45
Thailand Supakorn (1993)	NA	η_p = -0.67
Thailand Sartinsart (1993)	Linear Expenditure System and household level data of 1988	η_p = -0.09
Thailand Sartinsart et al. (2003)	Household socio-economic survey 2000. Consumer price index from the Department of Business Economics, Ministry of Commerce)	η_p = -0.393
Turkey Onder (2001)	Household level data Survey, 1994	η_p = -0.41
Ukraine Krasovsky, Andreeva, Krisanov, Mashliakivskyand Rud (2001)	June 2001 national survey	η_p = – 0.4
Ukraine Maksym Mashlyakivskyy (2004)	Monthly data 1997 to 2003	η_p = -0.3 to -0.48
Uruguay Ramos (2006)	Quarterly data 1991-2003	η_p =-0.34 to -0.55

Table 5. Countries Earmarking Tobacco Tax Revenues by Region.

Region/ Country	Number of countries/ states	Link between tax and spending program	Type of spending program
Africa	3	Weak	Broad: youth, sports and recreation (Madagascar), University hospital of Brazzaville (Congo), health (Comoros)
Central and South America	9	Weak	Broad: health (El Salvador, Guatemala, Jamaica), education, social and old age security (Costa Rica), sports (Colombia), debt cancelling and Anti-Cancer Commission (Uruguay), Agriculture, including subsidies to tobacco producers (Argentina), emergency relief (Paraguay). Narrow: Oncologic institute (Panama).
Europe	10	Weak	Broad spending examples: health, social security, culture. Narrow spending examples: smoking prevention, treatment of tobacco-related diseases (Finland, Iceland, Poland, Serbia and Switzerland).
North America U.S.A. (Federal and States)	36	Weak	Federal: Broad (Children's health insurance policy) States: Broad in all States. Often revenues are shared among spending programmes according to predetermined percentages. Spending examples: health, education, sports and recreational activities.
North Africa and Middle East	7	Weak	Broad: High Council for the Youth (Jordan), Solidarity National Fund (Tunisia). Narrow: tobacco control and treatment of tobacco diseases (Yemen), tobacco control (Djibouti, Iran and Qatar), health insurance for students (Egypt).
South-East Asia	3	Weak	Broad: health (India, Nepal, Thailand), social security (India)
Western Pacific	6	Weak	Broad: health (Korea, Mongolia, Philippines), education (Marshall Islands), railways and forest special service accounts (Japan) Narrow: tobacco control (Tuvalu).

NOTES: This table is not exhaustive, and relies on publicly available information from governments' websites**.** 1/ "Weak": Tobacco revenues are partially earmarked, or spending benefiting from earmarked revenues also benefit from other financing sources (e.g. general fund). "Tight": all revenues are earmarked and the spending programme is exclusively financed by earmarked revenues. 2/ "Broad": spending program is broadly defined (e.g. health, education). "Narrow": spending programme is narrowly defined or specific (e.g. smoking prevention).
Source: WHO data collection through the GTCR questionnaire and personal communication