

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 jurisdiction 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 bootlegging²⁷ (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.

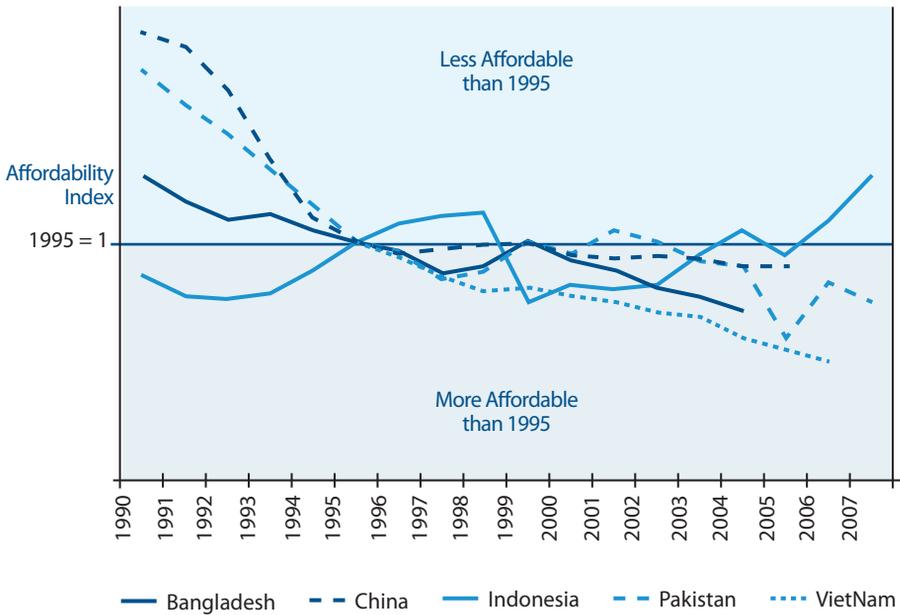
The U.S. in the 1970s provides a clear example of this. Despite continually increasing and well disseminated information about the health consequences of smoking, a new health warning label on cigarette packaging and advertising, a ban on broadcast advertising for cigarettes, the spread of restrictions 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

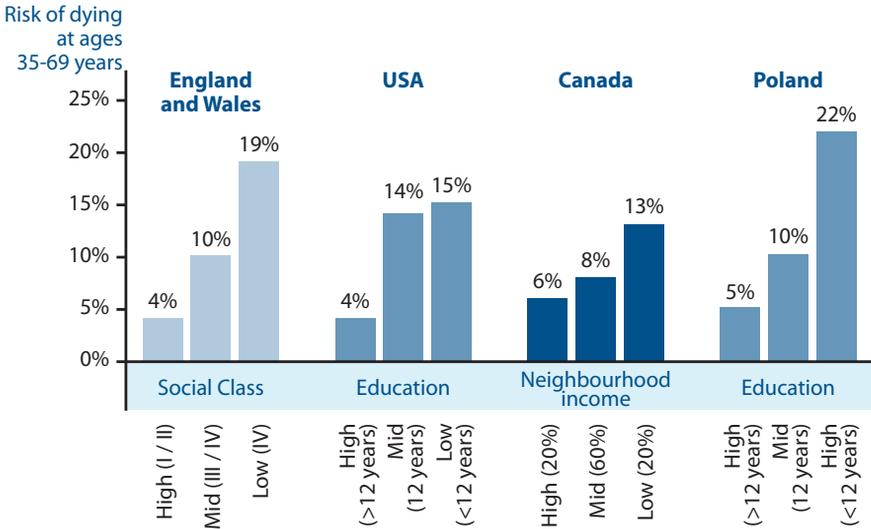
Tobacco tax rates that differ across products, and tobacco tax changes that affect prices across products differently, will lead to some substitution among these products (Chaloupka et al., 2000). For example, in Poland cigarette tax increases leading up to the country's accession to the European Union 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.