Price and tax policies  
(in relation to Article 6 of the Convention)  

Technical report by WHO’s Tobacco Free Initiative

Introduction

1. Article 6 of the WHO Framework Convention on Tobacco Control states that “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”. It goes on to call on the Parties to adopt and maintain tax and price policies that will “contribute to the health objectives aimed at reducing tobacco consumption” and to prohibit (or restrict) sales and/or importation of tax- and duty-free tobacco products.

2. At its third session (Durban, South Africa, 17–22 November 2008) the Conference of the Parties, recalling Article 6 of the Framework Convention, decided 1 “to invite WHO’s Tobacco Free Initiative, through the Convention Secretariat, to develop a comprehensive technical report relating to price and tax policies, based on expert advice, for presentation to the fourth session of the Conference of the Parties”.

3. This report has been prepared in accordance with decision FCTC/COP3(8). It provides a brief review of the evidence that proves the effectiveness of tobacco tax and price increases in reducing tobacco use, an overview of existing tobacco-product taxes and tax structures around the world, as well as a description of the revenue potential of higher tobacco-product taxes and how this revenue may be used to support other tobacco-control interventions and health-promotion activities.

Tax, price and public health

4. Higher taxes on tobacco products lead to higher prices, which reduce tobacco use and lead to health benefits as the death and disease caused by tobacco use are in turn reduced. The effectiveness of higher tobacco-product taxes and prices in reducing tobacco use and its consequences, particularly

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1 Decision FCTC/COP3(8).
among economically disadvantaged and young people, has been demonstrated by numerous studies.\(^1\) A key economic tool in research on the impact of price increases on tobacco consumption is the concept of price elasticity, which is the proportionate reduction in consumption resulting from a 1% increase in price. For example, a price elasticity of cigarette demand of -0.5 indicates that a 10% increase in cigarette prices reduces overall cigarette consumption by 5%. The lower the price elasticity in absolute terms, the less responsive is demand to price changes.

5. Almost all of the studies conducted in high-income countries have produced estimates of cigarette price elasticity in the range of -0.25 to -0.5, with most clustered around -0.4.\(^2\) In other words, a 10% increase in cigarette price is likely in most cases to reduce cigarette consumption by around 4% in these countries. When the addictive nature of tobacco use is taken into account, studies have shown that demand is more price responsive in the long run than in the short run.

6. Recent studies in low- and middle-income countries suggest that the price elasticity of demand in these countries is in fact lower than the approximately -0.8 previously estimated.\(^3\) In China, for example, the price elasticity of cigarette demand is estimated to range from -0.50 to -0.64.\(^4\) In India, estimates for price elasticity range from -0.86 to -0.92 for bidis, and from -0.18 to -0.34 for cigarettes.\(^5\)

7. Studies using survey data to examine the responses of different population subgroups to changes in the prices of tobacco products have provided consistent results with respect to differences in age and socioeconomic status. Young people are two to three times more responsive to changes in taxes and prices than are older individuals, with higher taxes and prices being particularly effective in preventing young people from moving beyond experimentation to become regular and addicted users of tobacco products.\(^6\) Population subgroups with lower socioeconomic status are more responsive to changes in price than those with higher socioeconomic status.

8. Taxes and prices affect both the prevalence of tobacco use and the amount of tobacco consumed by users. Estimates from high-income countries suggest that about half of the total impact of a price increase on tobacco use results from its impact on prevalence. Although the relative impact on prevalence and consumption varies considerably across studies and countries, comparable studies from

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low- and middle-income countries also find that cigarette prices affect both the prevalence and the intensity of cigarette smoking.1,2

9. When use of a tobacco product is reduced in response to an increase in its price, part of that reduction is offset by an increase in the use of other tobacco products whose prices remain unchanged. Comparable taxes and tax increases on all tobacco products therefore maximize the public health impact of such increases by minimizing opportunities for substitution.

10. Tax increases are not only effective in reducing tobacco use but they are also the most cost-effective tobacco control intervention.3,4 A 33% price increase, achieved at a cost of US$ 13–195 per years of healthy life saved (measured in disability-adjusted life years), would avert 22–65 million smoking-attributable deaths worldwide, which is equivalent to approximately 5%–15% of all smoking attributable deaths expected among those who smoked in 2000; in low- and middle-income countries, which account for about 90% of averted deaths, such an intervention would cost US$ 3–42 per disability-adjusted life years. Tax increases that would raise the real price of cigarettes by 10% worldwide would prevent 5–16 million tobacco-related deaths, and would cost US$ 3–70 per disability-adjusted life years in low- and middle-income countries.4

**Tobacco-product taxes – types, levels and structures**

11. Most governments tax tobacco and tobacco products, imposing a variety of taxes including excise taxes, value added taxes (VAT), general sales taxes, duties on tobacco product imports and/or exports, and/or other special taxes. Of these, tobacco product excise taxes (including other taxes specifically applied to tobacco products but given other names)5 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.

12. Most governments levy excise taxes and VAT on tobacco products and apply duties to imported tobacco products. Of 182 countries for which data are available, about 90% (163 countries) impose tobacco excise taxes, almost as many (156 countries) apply a VAT to tobacco products, and nearly all impose import duties.6 Countries that do not levy tobacco excises include those in the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), some Pacific island countries (including the Cook Islands, Kiribati, the Marshall Islands, Nauru, Niue and Palau), some Caribbean countries (including Antigua and Barbuda, Grenada, and Saint Lucia),

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5 For example, the “consumption tax” levied on cigarettes in China and the distinct general sales tax rates applied to tobacco products in Egypt.

and a few others (including Afghanistan, Benin, Maldives, and Sao Tome and Principe). In many of the countries which do not impose tobacco excises, there is little or no domestic tobacco production and unique duties are applied to imported tobacco products. VAT rates vary widely, from 2% to 20%, in the countries that apply a VAT to tobacco products. Import duties on tobacco products also vary widely, with rates reaching more than 100% of importers’ declared cost, insurance and freight (CIF) value in some countries. However, since the import duties are levied on importers’ CIF value, their impact on retail prices is much lower than the import duty rates. For example, total tax duty as a percentage of retail price is around 33% in Saudi Arabia, Bahrain, and Qatar despite the high rate of import duties (100% of import value) in those countries.

13. Excise taxes can be either specific or ad valorem. A specific excise tax is levied on the basis of quantity (e.g. a fixed amount per cigarette or weight of tobacco), while an ad valorem excise is levied on the basis of value (e.g. a percentage of the factory price or retail price). Tobacco product excises are generally, but not always, applied early in the distribution chain (on manufacturers or distributors).

14. The level and type of excise tax applied to tobacco products varies widely between countries, both by income level and by region. Tables 1 and 2 clearly illustrate the direct relationship between the level of cigarette excise tax and cigarette prices, with higher taxes resulting in higher prices.

15. When countries are grouped by income level, as shown in Table 1, the average price, average excise tax, and tax as a share of price all decrease as income decreases. Among WHO regions, as shown in Table 2, average cigarette taxes and average cigarette prices are highest in the European Region, followed by the Western Pacific Region. Cigarette excise taxes are lowest in the African and Eastern Mediterranean Regions, with excise and other taxes on cigarettes accounting for 40% of price, on average, in these two regions.

**Table 1.** Simple average price of the most sold brand, excise tax per pack, and total tax share, by country income group, 2008

<table>
<thead>
<tr>
<th>Income group</th>
<th>Average price/pack (US$)</th>
<th>Excise tax/pack (US$)</th>
<th>Total tax share (% of price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-income</td>
<td>4.99</td>
<td>2.66</td>
<td>63%</td>
</tr>
<tr>
<td>Upper-middle income</td>
<td>2.48</td>
<td>1.01</td>
<td>54%</td>
</tr>
<tr>
<td>Lower-middle income</td>
<td>1.73</td>
<td>0.54</td>
<td>45%</td>
</tr>
<tr>
<td>Low-income</td>
<td>1.06</td>
<td>0.27</td>
<td>39%</td>
</tr>
<tr>
<td>Worldwide</td>
<td>2.53</td>
<td>0.95</td>
<td>50%</td>
</tr>
</tbody>
</table>


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Table 2. Simple average price of the most sold brand, excise tax per pack, and total tax share, by WHO region, 2008

<table>
<thead>
<tr>
<th>WHO region</th>
<th>Average price/pack (US$)</th>
<th>Excise tax/pack (US$)</th>
<th>Total tax share (% of price)</th>
</tr>
</thead>
<tbody>
<tr>
<td>African Region</td>
<td>1.55</td>
<td>0.40</td>
<td>40%</td>
</tr>
<tr>
<td>Region of the Americas</td>
<td>2.40</td>
<td>0.79</td>
<td>45%</td>
</tr>
<tr>
<td>South-East Asia Region</td>
<td>1.40</td>
<td>0.69</td>
<td>55%</td>
</tr>
<tr>
<td>European Region</td>
<td>3.87</td>
<td>1.83</td>
<td>63%</td>
</tr>
<tr>
<td>Eastern Mediterranean Region</td>
<td>1.20</td>
<td>0.43</td>
<td>40%</td>
</tr>
<tr>
<td>Western Pacific Region</td>
<td>3.42</td>
<td>1.46</td>
<td>54%</td>
</tr>
</tbody>
</table>


16. In addition to variability between countries, excise taxes applied to cigarettes sometimes vary considerably within a country. Some countries levy a uniform specific excise tax on all cigarettes, while others apply a tiered tax structure that imposes differential specific excises that vary on the basis of manufacturers’ prices, production scale, whether or not the cigarette is filtered, cigarette length, or other factors. Similarly, some countries levy a uniform ad valorem excise tax on all cigarettes, while others impose differential ad valorem taxes based on price or other factors. In others, both types of excise are applied, with some countries varying the specific tax level and/or ad valorem tax rate based on cigarette prices, characteristics or other factors. Finally, some countries apply a minimum tax to lower-priced cigarette brands, with some variation of the tax structures described above applied to higher-priced brands.

17. There is also considerable variation between and within countries in the level and structure of taxes applied to other tobacco products. Some governments set their tobacco excises on different tobacco products so that the percentage of retail prices accounted for by excises is similar across all products. Others apply very different excises to different types of tobacco products so that the resulting share of price accounted for by tax varies widely between products. In a number of countries, some tobacco products are exempted completely or almost completely from tobacco excises.

**Tobacco product taxation: objectives and constraints**

18. The level and structure of tobacco excises therefore vary greatly between countries, with some governments adopting a relatively simple tax system that applies uniform taxes to all tobacco products, and others employing very complex systems with different taxes applied to different brands and products on the basis of such factors as price, type of product and product characteristics. Variability in tobacco excises is a reflection of differences in governments’ objectives and the constraints they face. Objectives may include revenue generation, protecting public health, protecting domestic tobacco growers and/or manufacturers, and ensuring that some tobacco products are affordable by economically disadvantaged people. Constraints include concerns over the potentially negative effects of tobacco tax increases, such as whether they are regressive (place a disproportionate burden on economically disadvantaged people), lead to or exacerbate illicit activities in the tobacco products market, or have an inflationary effect. These issues are discussed below, including the fact that the constraints sometimes cited as barriers to implementation of higher tobacco-product taxes are misleading.
Revenue generation

19. As countries increasingly adopt bilateral, regional, and global trade agreements, the effectiveness of import duties in generating higher revenues has decreased. Consequently, domestic indirect taxes, such as tobacco excises, have become increasingly important.

20. The revenue-generating potential of higher tobacco-product taxes depends on a number of factors: (1) price elasticity of demand for tobacco products; (2) share of taxes in retail prices of tobacco products; (3) complexity of tax system; and (4) technical and human capacity of tax administration. As mentioned above, demand for tobacco products exhibits a low price elasticity in almost all of the countries for which evidence exists. Moreover, as Tables 1 and 2 show, the share of tax in retail prices is low enough to ensure that increases in tobacco-product taxes will lead to higher revenues. 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. However, 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.

Protecting public health

21. All tobacco products are harmful and should be taxed consistently. Applying a single rate of specific taxation to all tobacco products and brands of the same product maximizes the impact of tobacco-product taxes on public health relative to a single ad valorem tax rate: it leads to relatively higher increases in consumer prices and reduces the gap in prices between higher- and lower-priced alternatives, thereby limiting opportunities for users to switch products in response to tax increases. Ad valorem excises lead to relatively low price increases and create greater gaps in prices between high- and low-priced brands. Reliance on ad valorem excises creates opportunities for tobacco users to move to cheaper brands/products, and leads to dependence on industry pricing decisions. Moreover, ad valorem excises may be more difficult to administer and increase opportunities for tax avoidance and tax evasion, jeopardizing the beneficial impact of higher tobacco-product taxes on public health.

22. In general, in addition to being more difficult to administer, a complex tax structure undermines the health impact of tobacco excise taxes by creating greater opportunities for tax avoidance and tax evasion and by leading to significantly greater variability compared to a simple tax system in the prices of tobacco products, which in turn creates opportunities for people to switch to cheaper brands/products in response to increased taxes.

23. A strong tax administration is a requisite not only for revenue generation but also for ensuring that tobacco-product taxes achieve health objectives. A strong administration agency ensures compliance with taxes by reducing tax avoidance and evasion opportunities, and keeps administrative costs low relative to the revenues collected by the tax. Such an agency needs to have the necessary technical capacity to: monitor tobacco production and distribution, industry pricing strategies, market conditions and other factors affecting the demand for tobacco products; take account of the implications of alternative tax structures; and assess the impact of changes in tobacco-product taxes not just on tobacco tax revenues but also on tobacco use and its consequences.

Affordability of tobacco products

24. Nominal tax increases, i.e. increases in the “face value” of taxes which are not corrected for inflation, are not adequate to achieve public health objectives, as the real value of specific tobacco-
product taxes decreases over time as general price levels increase. This problem can be avoided if governments establish a mechanism for automatically adjusting specific taxes so as to keep pace with inflation; only Australia and New Zealand have done this to date.

25. Increases in real income also have an effect on demand for tobacco products. 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 general, tobacco tax and price increases in high-income countries are higher than increases in income, and hence tobacco products are less affordable over time.\(^1\)\(^2\) In low- and lower-middle-income countries, tax and price increases have historically been smaller than increases in income, leading to greater affordability. In China, for example, which experienced sharp income growth during the period 1990–2005, cigarettes became more affordable despite large increases in cigarette prices.\(^3\) To maximize the health impact of higher tobacco-product taxes, tax increases must therefore lead to increases in the real retail price of tobacco products which are greater than increases in real incomes.

### The effect of tobacco-product taxes on low-income groups

26. When prevalence of tobacco use and consumption patterns are similar across income groups, and taxes are similar across tobacco products, tobacco-product taxes are regressive. However, keeping taxes and prices low does not really benefit low-income groups as it encourages greater tobacco use among them, causing them to bear a disproportionate share of the burden of the health and economic consequences of tobacco use.

27. Moreover, even if the tax itself is regressive, the impact of the tax increase can be progressive. 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. Given the evidence for differences in price responsiveness by income,\(^4\) higher taxes on all tobacco products lead to a relatively large reduction in tobacco use among low-income groups and increase 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. Looking at the overall picture, higher tobacco-product taxes do not benefit economically disadvantaged people.

28. As tobacco tax increases generate additional revenue for the government, part of this additional revenue can be used to finance programmes, including other tobacco-control interventions and health-promotion campaigns, that will enhance the beneficial effect of the tax increase. Moreover, if concerns

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about the impact of tax increases on low-income groups remain, these can be offset by using (part of) the extra revenues generated to support public programmes targeted specifically at low-income groups.

**Tobacco-product taxes and their effect on employment**

29. In most countries, tobacco tax increases would be likely to have either no net impact on employment or, more likely, would lead to a small increase in the number of jobs. Higher tobacco-product taxes reduce tobacco consumption, and hence spending on tobacco products would be replaced by spending on other goods and services. Any reductions in tobacco-dependent employment, following tobacco tax increases, would therefore be offset by increases in employment in other sectors.

30. If countries are still concerned about job losses in tobacco-dependent sectors, they can adopt programmes that help tobacco farmers to switch to the farming of other crops and/or retrain those employed in tobacco product manufacturing for work in other sectors. Crop-diversification programmes that support farmers and programmes retraining those involved in tobacco product manufacturing could be financed by the extra revenues generated from increases in tobacco-product taxes.

**Inflationary impact of higher tobacco-product taxes**

31. Occasionally the impact of tobacco-product taxes on inflation is used as an argument against tobacco tax increases. High tax increases may have an impact on inflation in countries where wages and/or a significant share of government spending, such as public pensions, are indexed to inflation. However, the degree to which tobacco tax increases lead to increases in inflation depends, primarily, on the share of tobacco-product taxes in consumer prices and the weight tobacco prices are given in the basket of commodities used in calculating a price index.

32. 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. If concerns about the inflationary impact of tobacco-product taxes persist, governments may exclude tobacco products from the basket of commodities used in developing key price indices, as in Belgium and France, for example.

**Illicit trade and tobacco-product taxes**

33. The existence of illicit activities in the tobacco products market, especially if they account for a high fraction of the total market, has an impact on both consumption (and hence public health), and tax revenues. High tax increases may provide financial incentives for smuggling but only when enforcement and tax laws are weak, penalties are small, and the prosecution process is long.

34. In order to minimize tax evasion, up-to-date technologies should be adopted, and in particular a state-of-the-art monitoring, tracking and tracing system, including tax stamps. Licensing of all parties involved in the production and distribution process of tobacco products facilitates monitoring of markets, makes it easier to identify illicit tobacco products, and increases the ability of administrators to identify and penalize offenders.

35. Strong tobacco tax enforcement raises the likelihood that those engaging in illicit trade in tobacco products will be caught, while high administrative penalties increase the severity of the punishment for such illegal activities. Together these factors reduce the expected rewards for illegal traders. Examples
of the use of effective measures to control the supply of smuggled tobacco are provided by Spain in the 1990s and the United Kingdom of Great Britain and Northern Ireland from 2000.1

36. There is some evidence that the availability of duty-free sales of tobacco products has facilitated illicit trade in tobacco products in many countries. Article 6 of the WHO Framework Convention on Tobacco Control calls for the prohibition (or restriction) of sales and importations by international travellers of tax- and duty-free tobacco products. Such a prohibition or restriction would increase the public health impact of higher tobacco-product taxes by raising all tobacco product prices and by reducing opportunities for tax avoidance and tax evasion.

37. Excise tax departments need to collaborate with customs departments to minimize non-compliance and enable effective monitoring of trade. Such efforts are most effective when they are undertaken in cooperation with regional and international tax and customs authorities.

**Tobacco tax revenues and funding for tobacco control and health promotion**

38. 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.2 A growing number of governments have used the revenues generated by tobacco excise tax increases to fund a variety of tobacco control activities and/or other health promotion efforts, while others have used these revenues to finance parts of their health-care systems. Around 38 countries worldwide earmark part or all their tobacco-product taxes for specific programmes, but relatively few governments earmark tobacco product tax revenues for tobacco-control efforts, despite the evidence that this type of earmarking increases political and civil society support for tobacco tax increases. Those that do use earmarking tend to allocate only a small percentage of tax revenues to these efforts. Several others dedicate tobacco tax revenues to other health-related programmes, but again, this is relatively uncommon and the percentage of revenues dedicated to these programmes is typically small.

39. The earmarking of tobacco product tax revenues for tobacco control and/or other health-related programmes is therefore used in relatively few countries, probably as a result of opposition to earmarking because of the rigidities it introduces into the budgetary process. These rigidities limit the use of revenues for alternative purposes, discourage the optimal allocation of resources and, as a result, reduce social welfare. From a public finance perspective, the strongest support for earmarking comes from the principle of benefit taxation and user fees, which states that the revenues generated from a tax should be used to provide benefits to those paying the tax. In the case of tobacco-product taxes, it could be argued that tobacco users will be the greatest beneficiaries of tobacco-control programmes, which promote cessation and prevent initiation of tobacco use, as well as of health-promotion and health-care programmes funded by the tax, given the greater use of health-care services by tobacco users.

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1 See Johnson P. Cost benefit analysis of the FCTC protocol on illicit trade in tobacco products. Action on Smoking and Health, 2009. The study’s main conclusion is that the benefits of implementing a protocol to the Framework Convention on eliminating illicit trade in tobacco products, in the United Kingdom of Great Britain and Northern Ireland, are highly likely to exceed the costs.

2 For example, if the price elasticity of cigarette demand is -0.8 and cigarette excises account for half of cigarette prices, a doubling (100% increase) of the cigarette tax will lead to a 50% increase in cigarette prices and a 40% reduction in cigarette consumption. The resulting 60% of consumption will be taxed at twice the original rate, leading to a 20% increase in revenues.
40. In many countries, particularly the poorest countries, sizable increases in tobacco-product taxes would generate enough revenue to support a range of tobacco-control and other health-promotion activities, strengthen health systems, and address the spread of noncommunicable diseases, while at the same time lead to significant reductions in the death, disease, and economic costs caused by tobacco use.

Summary

41. Tobacco excise taxes are a powerful tool for improving health. They are also a reliable source of government revenues. Significant increases in tobacco excises result in higher tobacco product prices, which encourage current tobacco users to stop using, prevent potential users from taking up tobacco use, and reduce consumption among those that continue to use, with the greatest impact being on the young and economically disadvantaged people. As a result, higher taxes are effective in reducing the death, disease, and economic costs caused by tobacco use. The positive health impact is even greater when some of the revenues generated by tobacco tax increases are used to support tobacco-control, health-promotion, and/or other health-related activities and programmes.

42. Given the objective of using tax/price policies to reduce tobacco consumption and improve health, three main conclusions may be drawn from the evidence.

(i) When governments set taxes, it is important that they are set so as to reduce the affordability of tobacco products to such an extent that there are significant reductions in tobacco use and its consequences, particularly among those most at risk of taking up tobacco use (young people) and among those who bear the disproportionate burden of health and economic consequences of tobacco use (economically disadvantaged people).

(ii) A tax structure that raises the prices of all tobacco products and minimizes the gap between the prices of low- and high-priced brands of a given type of tobacco product, reduces opportunities for tobacco users to switch to cheaper brands/products in response to tax increases, thus maximizing the health impact of a tobacco tax increase.

(iii) Given the significant new revenues that can be generated by tobacco tax increases, these revenues have the potential to support comprehensive tobacco-control efforts, thereby adding to the health and economic benefits of tobacco tax increases by further reducing tobacco use.

ACTION BY THE CONFERENCE OF THE PARTIES

43. The Conference of the Parties is invited to note this report and to provide further guidance.