

Economics of tobacco control (part 3): evidence from the ITC Project

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Article 6 of the WHO Framework Convention on Tobacco Control (FCTC) urges Parties to use tax and price measures to reduce the demand for tobacco.¹ Evidence of the effectiveness of using increases in the excise tax to reduce tobacco consumption was gathered during the 1980s and 1990s, slowly, and primarily US-focused at first, but more rapidly and increasingly internationally subsequently.² *Curbing the Epidemic*,³ together with its companion piece, *Tobacco Control in Developing Countries*,⁴ collated the (limited) empirical evidence at the time and made very strong policy recommendations about the role of increasing the excise tax in reducing the consumption of tobacco and raising government revenue.

Whereas it was previously thought that public education and information campaigns were the most effective tobacco control mechanisms and that taxation was a minor and complementary measure, these publications turned this thinking on its head.² Since the start of the 21st century, the evidence for the effectiveness of excise taxes as a means to reduce tobacco use has been indisputable. Hundreds of studies, many summarised in review publications like the IARC Handbook 14⁵ and the National Cancer Institute's Monograph 21 on the *Economics of Tobacco Control*,⁶ provided strong evidence that tobacco tax increases are an important, even primary tool, in the tobacco control toolkit. The rallying cry of 'raise the excise tax' is made by economists and non-economists alike and is now considered mainstream thinking.

The effectiveness of an increase in the excise tax in reducing tobacco consumption can be undermined by a number of factors. A poor excise tax structure (eg, an ad valorem tax or a structure with multiple tax tiers, in contrast to a uniform specific tax) is often associated with a wide range of cigarette prices, which encourages smokers to substitute to lower-priced brands when faced with a price increase,

rather than quit smoking. Similarly, cigarettes may become more affordable in countries that experience rapid economic growth, despite an increase in the excise tax or the real (inflation-adjusted) price of cigarettes. Furthermore, the presence of illicit cigarettes creates opportunities for smokers to purchase low-priced cigarettes, with detrimental public health and fiscal consequences.

This supplement contains nine papers that consider these and other issues. All nine papers are based on data collected by the International Tobacco Control Policy Evaluation Project (ITC Project). The ITC Project, created in 2002, is an international evidence-gathering system that has evaluated WHO FCTC policies and has grown from the original four countries (Canada, the USA, the UK and Australia) to 29 countries, covering over half of the world's population and over two-thirds of the world's tobacco users. The ITC Project was the first, and is still the only, international research program with a focus on WHO FCTC impact evaluation. Across the 29 countries, over 110 survey waves of data have been collected to date (October 2018). The commonality of the ITC methods and measures allows for cross-country comparisons. The ITC data are longitudinal, meaning that broadly the same group of people are surveyed across different waves. This allows researchers to draw much stronger conclusions than if the ITC Project performed a repeated cross-sectional survey in each round of data collection.

TAX STRUCTURE, DIFFERENTIAL PRICES AND SUBSTITUTION POSSIBILITIES

The WHO *Tobacco Tax Administration Manual*⁷ and the WHO FCTC's *Article 6 Guidelines*¹ indicate that a simple tax structure is superior to more complex tax structures. Four papers in this supplement further explore this issue. Based on data from 17 countries, Shang *et al*⁸ find that cigarette consumption in countries with a uniform specific tax is lower than in countries with an ad valorem tax structure and substantially lower than in countries with a tiered tax system.

Bangladesh has a tiered tax system, with four tiers, in which low-priced cigarettes are taxed at a substantially lower rate than

medium-priced and high-priced cigarettes. Huq *et al* find that, between 2009 and 2011/2012, the share of the lowest price segment has increased by more than 12 percentage points, as smokers have down-traded in response to higher prices.⁹ The different price tiers give smokers more flexibility of choice when faced with income shocks. Rather than quitting smoking or not starting smoking, people simply down-trade when faced by higher prices and the public health benefit of the higher prices is lost.

As in Bangladesh, cigarettes in China are subject to very large price discrepancies. Xu *et al* investigate the China National Tobacco Company's (CNTC) *premiumisation strategy* that was launched in 2009, and that aimed to encourage smokers to trade up to more expensive brands, on the grounds that these brands are of higher quality and thus less harmful.¹⁰ They find that the strategy has been successful, driven largely by China's rapid economic growth, the fact that a sizeable proportion of smokers believe the CNTC's message and the practice of giving expensive cigarettes as gifts.

Stoklosa *et al* consider the substitutability between factory-made (FM) and roll-your-own (RYO) cigarettes in Zambia.¹¹ RYO cigarettes are substantially cheaper than FM cigarettes and are typically consumed by poorer smokers. The authors find, unsurprisingly, that FM and RYO cigarettes are substitutes, but that the substitution effect of relative price changes is particularly strong from FM cigarettes to RYO cigarettes. Thus, rather than quitting smoking, smokers of FM cigarettes are likely to switch to RYO cigarettes when faced with higher prices.

Other than in the case of China, where there has been an intentional industry-led strategy of 'up-trading', the other papers indicate that, in the presence of cheaper alternatives, the public health benefits of an increase in the price of tobacco products are generally undermined, as people tend to switch to cheaper alternatives. If governments are serious about public health, better tax structures should be implemented.

ILLICIT TRADE

Rather than switching between different price categories, smokers in some countries have the option to switch to illicit cigarettes. Curti *et al* investigate this in Uruguay, a country with relatively high cigarette prices, and not much price variation across brands, but one which is surrounded by countries with substantially

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lower cigarette prices.¹² They find that smokers in cities which border Brazil and Argentina are substantially more likely to purchase illicit cigarettes than smokers in non-border cities.

The implication of this study is that countries should ratify and implement the Illicit Trade Protocol and that there should be some tax harmonisation between neighbouring countries.

CIGARETTE AFFORDABILITY

Two papers address the issue of affordability. Using well-established measures of cigarette affordability (based on aggregate data), Nargis *et al* conclude that despite substantial increases in the price of cigarettes in Bangladesh, cigarettes and bidis have become more affordable between 2009 and 2014/2015 because income growth has outpaced the growth in the price of cigarettes.¹³

Using a new measure of affordability, Partos *et al* calculate the affordability of cigarettes in the UK at the individual level.¹⁴ They find that, between 2002 and 2014, FM cigarettes have become significantly less affordable, as tax-induced price increases have generally exceeded the increases in income. Given the relatively larger increases in the price of RYO cigarettes, these have also become less affordable, and at an even more rapid rate than cigarettes. However, in absolute terms, RYO cigarettes are still more affordable than FM cigarettes.

SMOKING INITIATION AND QUITTING

Shang *et al*¹⁵ consider the impact of price changes on smoking initiation, for both cigarettes and bidis, in four states in India. Using a single wave of data, they create a pseudopanel dataset from respondents' reported age at smoking onset and apply a discrete-time hazard (survival) model. They find that an increase in the price of cigarettes is associated with a significantly lower probability of people initiating smoking among urban residents, but not among rural residents. An increase in the price of bidis significantly reduces smoking initiation among both urban and rural residents.

Whereas Shang and colleagues focus on smoking initiation, Van den Brand *et al*¹⁶ focus on quitting smoking. Like smoking initiation, quitting is influenced by many factors. The focus of this study was on one possible aspect, namely free or lower-cost medication to support quitting smoking. Using data from the Netherlands and the UK, they find that respondents mentioning

free or lower-cost medication, as a trigger to quit smoking, were significantly associated with more attempts to quit, but, sadly, not with successful quitting.

CONCLUSION

The single most important conclusion of this supplement is that the excise tax structure is a crucial ingredient in an effective tobacco tax strategy. Simply increasing the level of the excise tax is not sufficient; the tax system should be appropriate. Complicated excise tax structures create unpredictable outcomes, both from a fiscal and a public health perspective. Compared with a simple tax structure, such as a uniform specific tax, complicated tax structures are typically associated with greater variation in cigarette prices. The impact of an increase in excise tax in a complicated tax structure is blunted, as people substitute between different price categories.

Furthermore, although the primary aim of tobacco tax increases in many countries is to reduce tobacco consumption, in some countries, the revenue aspect trumps the public health dimension. While the fiscal aspect of a tobacco tax was not really the focus of the papers in this supplement, a good tax system also yields superior revenue outcomes. This should be investigated on a case-by-case basis.

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