

# The economics of tobacco control: evidence from the International Tobacco Control (ITC) Policy Evaluation Project

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## ABSTRACT

Over the past few decades, the importance of economic research in advancing tobacco control policies has become increasingly clear. Extensive research has demonstrated that increasing tobacco taxes and prices is the single most cost-effective tobacco control measure. The research contained in this supplement adds to this evidence and provides new insights into how smokers respond to tax and price changes using the rich data on purchase behaviours, brand choices, tax avoidance and evasion, and tobacco use collected systematically and consistently across countries and over time by the International Tobacco Control (ITC) Project. The findings from this research will help inform policymakers, public health professionals, advocates, and others seeking to maximise the public health and economic benefits from higher taxes.

Over the past few decades, the importance of economic research in advancing tobacco control policies has become increasingly clear. Evidence on the impact of tax and price increases on tobacco use is needed in order to determine the revenue and public health effects of excise tax increases. To maximise these effects, one needs to understand the advantages and limitations of alternative types of tobacco tax structures. Objective data on the extent and determinants of tax avoidance and tax evasion are needed to address concerns that higher taxes and other tobacco control policies will lead to illicit tobacco markets and to identify the most effective approaches to tax administration. The importance of economic research is clear from the emphasis on economic research in nearly all the tobacco control research priorities identified by the WHO (2010) as part of its non-communicable disease research agenda setting process that included:

- ▶ Research to estimate the impact of tax and price policies, including developing country-specific price elasticity estimates, differential impact, tax structure and effective tax administration to curb tax avoidance and tax evasion.
- ▶ Research to improve cessation interventions, including adaptation of interventions effective in high-income countries to low-income and middle-income countries, identification of most cost-effective interventions for resource-constrained countries, and integration of cessation into health systems.
- ▶ Research to assess the economic impact of tobacco use and to evaluate the economic impact of tobacco control (eg, on jobs, health-care costs and productivity).

- ▶ Research on the inter-relationships between tobacco use and poverty, including the role of tobacco use in causing poverty, and compromising other spending, and the differential effect of tobacco control policies and programmes on the poor.
- ▶ Research to develop messages effective in overcoming misinformation spread by tobacco companies, building/strengthening social norms against tobacco, and building support for tobacco control policies and programmes.
- ▶ Finally, in the subset of countries with high economic dependence on tobacco, research on developing economically viable alternatives to tobacco growing and manufacturing.

The economic research contained in this supplement addresses many of these issues, taking advantage of the unique data collected in the International Tobacco Control Policy Evaluation Project (ITC Project). The ITC Project is a transdisciplinary collaboration of over 100 researchers across 22 countries: Canada, USA, UK, Australia, Ireland, Thailand, Malaysia, Republic of Korea, China, Mexico, Uruguay, New Zealand, France, Germany, The Netherlands, Mauritius, Brazil, Bangladesh, Bhutan, India, Kenya and Zambia. The primary objective of the ITC Project is to evaluate the effectiveness of current tobacco control policies and to provide evidence for governments to assess the possible need for stronger policies; and then when new policies are implemented, to evaluate them over time and in comparison with other ITC countries where those policies have not changed during that same period of time. Conducting parallel surveys in countries being compared is known as a quasi-experimental design or 'natural experiment' design. This type of research design provides rigorous evaluation of the psychosocial and behavioural effects of national level tobacco control policies of the Framework Convention on Tobacco Control (FCTC). The ITC Project is conducting large-scale annual prospective cohort surveys of tobacco use to evaluate FCTC policies in countries inhabited by over half the world's smokers. Each ITC Survey includes key measures for each FCTC policy domain that are identical or functionally similar across all ITC countries to facilitate cross-country comparisons.

In the decade since the ITC Project was founded (2002), there have been over 90 survey waves conducted across the 22 countries. The resulting data, through the project's scientific publications and reports, have been used to evaluate FCTC implementation by countries across many domains of the treaty, including health warnings (pictorial

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warnings in Australia, Canada, Mexico, Uruguay, Brazil, Thailand, Malaysia, Mauritius), smoke-free laws (eg, Ireland, Scotland, UK more broadly, France, Germany, The Netherlands, China, Mauritius, India, Mexico, Uruguay, Brazil, Thailand, Malaysia), laws designed to restrict/ban advertising, promotion and sponsorship (eg, Canada, USA, UK, Australia, Thailand, Malaysia, Uruguay, China), illicit trade and price-reduction consumer strategies (eg, Canada, USA, France, Germany, The Netherlands, Uruguay), communication strategies to increase knowledge about the harms of tobacco use and second-hand smoke (eg, Malaysia, Mauritius, Mexico, China), and the focus of this supplement, tobacco price/tax policies.

Several of the papers in this supplement assess the impact of cigarette taxes and prices on various aspects of smokers' behaviour, including cigarette consumption, purchase behaviours, brand choice and tax avoidance, as well as on how these behaviours differ by socioeconomic status. Nargis *et al*<sup>1</sup> use data from the first two waves of the ITC-Bangladesh survey to estimate the price elasticity of cigarette demand, concluding that a 10% increase in price would reduce overall demand by about 6%, with about two-thirds of the reduction accounted for by reduction in smoking prevalence. Consistent with experiences in many countries, they also find that cigarette consumption among people of lower socioeconomic status is more responsive to price than consumption among higher socioeconomic groups. Huang *et al*<sup>2</sup> find that price is a key factor in brand choice for many urban Chinese smokers, particularly lower income and less educated smokers, while higher income and more educated smokers are more likely to take advantage of the quantity discounts that can be obtained by buying in cartons. Similarly, Yao *et al*<sup>3</sup> conclude that younger and lower income Chinese smokers were more likely to buy cheaper cigarettes for economic reasons, suggesting that reducing the availability of cheaper cigarettes in China is essential for achieving significant reductions in smoking. Cornelius *et al*<sup>4</sup> present evidence for the USA, showing that the percentage of smokers using discount brands increased from 2002 to 2011, with female, lower income and heavier smokers more likely to choose discount brands. By contrast, Cowie *et al*<sup>5</sup> find that brand choices in Australia have been relatively stable over time, despite increasingly strong constraints on tobacco marketing, with about 80% of Australian smokers remaining brand loyal from 2002 through early 2012. They do, however, observe differences in brand loyalty in various population subgroups, with younger smokers, lower income and more addicted smokers less brand loyal than their older, higher income and more addicted counterparts.

The importance of tax structure in driving smokers' behaviours, including brand choice, is demonstrated in papers using ITC data from diverse countries, including China, Canada, Mexico and the USA. Shang *et al*<sup>6</sup> use recent data on brand choice and prices paid reported by smokers in 16 ITC countries to examine how the use of uniform versus tiered taxes and of specific, ad valorem and mixed tax structures affects the distribution of cigarette prices, concluding that uniform specific tax structures result in less variability in prices. White *et al*<sup>7</sup> show that the wide variation in prices that results from the mixed tax structure used in China that consists of a very small uniform specific tax and a tiered ad valorem tax that accounts for most of the total tax helps explain changes in brand choice by Chinese smokers over time, particularly trading down to cheaper brands. By contrast, Nargis *et al*<sup>8</sup> find that the uniform specific tax structure used in Canada and the USA leads continuing smokers to trade up to premium brands given the increase in the price of discount brands relative to premium brands

following an increase in the specific tax. Sáenz de Miera Juárez *et al*<sup>9</sup> find that the same sort of trading up occurred in Mexico, in this case to international brands, following the sharp increase in the specific component of its mixed cigarette tax in 2011 that resulted in a relatively larger increase in the prices of domestic brands compared to international brands.

The remaining papers explore issues of tax avoidance and tax evasion. Guindon *et al*<sup>10</sup> use data from ITC surveys conducted in 16 countries to assess the extent of tax avoidance and evasion over time and across countries, finding that the prevalence of avoidance/evasion differs considerably across countries, from relatively little in many countries, including Australia, Thailand, The Netherlands, Ireland, Scotland and Mexico, to relatively high rates in others, including Canada, the UK, Malaysia and China. Nagelhout *et al*<sup>11</sup> use the ITC surveys conducted in western European countries from 2006 to 2008 to explore the determinants of cross-border cigarette purchases, concluding that smokers near borders with lower tax/price countries, particularly those in France and Germany, were most likely to avoid taxes by crossing borders, with more educated and higher-income smokers more likely to engage in cross-border shopping. Fix *et al*<sup>12</sup> report findings from a novel approach to assessing tax avoidance/evasion in which smokers participating in the ITC-USA surveys in 2009 and 2010 were invited to mail back cigarette packs. Based on the difference between the tax stamp on the packs collected and respondents' state of residence, they estimate that more than one in five packs returned had avoided or evaded state taxes. Finally, in their reanalysis of the US Food and Drug Administration's (USFDA) estimates of the impact of Canada's graphic warning labels on smoking prevalence, Huang *et al*<sup>13</sup> show that failing to account for the lower prices that result from widespread tax avoidance and evasion can lead to erroneous conclusions about the effectiveness of other tobacco control policies. They conclude that the USFDA's analysis that relied on official prices that do not reflect opportunities for tax avoidance/evasion attributed too much of the decline in smoking prevalence in Canada to increasing taxes and prices and, as a result, the USFDA significantly underestimated the potential impact of graphic warning labels in the USA.

The research covered in this supplement is important. The findings will help inform policymakers, public health professionals, advocates, and others seeking to maximise the public health and economic benefits from higher tobacco taxes and prices.

### What this paper adds

- The research contained in this supplement provides new insights into how smokers respond to tax and price changes using the rich data on purchase behaviours, brand choices, tax avoidance and evasion, and tobacco use collected systematically and consistently across countries and over time by the International Tobacco Control (ITC) Project.
- The findings from this research will be of interest to policymakers, public health professionals, advocates, and others seeking to understand and take full advantage of the public health and economic benefits from higher tobacco taxes.

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