



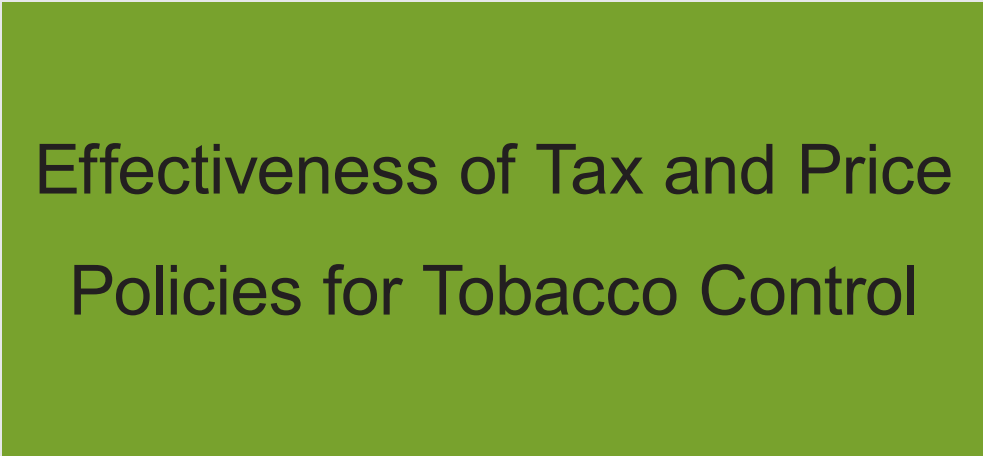
International Agency for Research on Cancer



IARC HANDBOOKS OF CANCER PREVENTION

Tobacco Control

Volume 14



**Effectiveness of Tax and Price
Policies for Tobacco Control**

2011



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International Agency for Research on Cancer

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The Agency conducts a programme of research concentrating particularly on the epidemiology of cancer and the study of potential carcinogens in the human environment. Its field studies are supplemented by biological and chemical research carried out in the Agency's laboratories in Lyon and, through collaborative research agreements, in national research institutions in many countries. The Agency also conducts a programme for the education and training of personnel for cancer research.

The publications of the Agency contribute to the dissemination of authoritative information on different aspects of cancer research. Information about IARC publications, and how to order them, is available via the Internet at: <http://www.iarc.fr/en/publications/index.php>.

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Preface

Tobacco smoking causes cancer to over 15 organ sites, and exposure to secondhand smoke and parental smoking cause cancer in non-smokers and in the offspring (Secretan *et al.*, 2009). Tobacco use represents the largest preventable cause of cancer worldwide. In particular, tobacco smoking is pandemic and covers all ages, affecting over a billion people. The eradication of tobacco use can only be achieved by preventing children and adolescents from starting use today. Quitting smoking will reduce disease and mortality in a shorter time span, as the risk of several cancers decreases with increasing time since cessation even after several decades of smoking (IARC, 2007).

Article 6 of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) is one of the instruments in the treaty aimed at reducing the demand of tobacco use in the population (WHO, 2005). It directs ratifying nations to adopt three measures:

- To implement tax policies, and if appropriate, price policies on tobacco products to achieve a reduction in the consumption of tobacco in the population;
- To prohibit or limit the sale and importation of tax-free and duty-free tobacco products; and lastly,

- To report periodically to the Conference of the Parties the country-specific rates of tobacco taxes and the trends in tobacco use.

Adherence to the treaty will induce countries to revise existent tobacco control policies and set priorities, including the use of taxes. Handbook Volume 14 can inform policy-makers in those countries to fulfil the demands of WHO FCTC Article 6.

The use of taxes to increase the retail price of tobacco products can affect both initiation and cessation. The examination of the effectiveness of this intervention for tobacco control is the central theme of Volume 14 in the IARC Handbooks of Cancer Prevention series.

IARC Handbook Volume 14 presents an evidence-based evaluation of the literature published up to May 2010 on the effectiveness of tax and price policies in reducing the prevalence and consumption of tobacco use (Chaloupka *et al.*, 2011). The volume also covers the impact of cross-border shopping, smuggling, and the tobacco industry's use of discount prices and other strategies on reducing the effectiveness of taxes. The volume was authored by a Working Group of experts from 12 countries who gathered, critically analysed, synthesized and

peer-reviewed the evidence in an interval of approximately 8 months and later finalized the draft chapters in a six-day meeting of experts in Lyon, France in May 2010. The main chapters present the evidence, and include tables presenting key descriptors of the studies reviewed on the effect of taxes on aggregated demand for tobacco, adult tobacco use, use among young people and use among the poor. Volume 14 includes a summary chapter describing the key findings and conclusions from each chapter. The evaluation and recommendations for research and public health are presented in additional, succinct chapters.

Two WHO publications provide complementary data regarding the use of taxes on tobacco products as a tobacco control intervention. The WHO Report on the Global Tobacco Epidemic (2008) presents the MPOWER package, a set of six policy interventions, including increases in taxes, promoted to reduce tobacco use and associated mortality. This report includes the level of implementation of tax policies across the world, including the price of the most popular brand of cigarettes, the amount of taxes as a percent of the retail price, the type of tax applied and the affordability of the most popular brand. A second

publication, *WHO Technical Manual on Tobacco Tax Administration*, focuses on tax administration and offers the best practices to countries around the world that have signed the WHO-FCTC and are required to implement effective tax and price policies (WHO, 2010).

This IARC Handbook provides an in-depth and up-to-date critical review on the effectiveness of various tax-related interventions to curb the global tobacco epidemic. Together with the two WHO publications this will allow policy makers to base their decisions on the latest scientific evidence and choose the most effective interventions.

References

- Chaloupka FJ, Straif K, Leon ME (2011). Effectiveness of tax and price policies in tobacco control. *Tob Control*, 20:235–238. doi:10.1136/tc.2010.039982 PMID:21115556
- IARC (2007). IARC Handbooks of Cancer Prevention, Tobacco Control, Volume 11: Reversal of Risk After Quitting Smoking. Lyon, International Agency for Research on Cancer.
- Secretan B, Straif K, Baan R et al.; WHO International Agency for Research on Cancer Monograph Working Group (2009). A review of human carcinogens—Part E: tobacco, areca nut, alcohol, coal smoke, and salted fish. *Lancet Oncol*, 10:1033–1034. doi:10.1016/S1470-2045(09)70326-2 PMID:19891056
- World Health Organization (2005). *WHO Framework Convention on Tobacco Control*. Geneva, World Health Organization.
- World Health Organization (2008). *WHO report on the global tobacco epidemic 2008: the MPOWER package*. Geneva, World Health Organization.
- World Health Organization (2010). *WHO Technical Manual on Tobacco Tax Administration*. Geneva, World Health Organization.