

LETTERS TO THE EDITOR

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The Big Mac index of cigarette affordability

To the Editor—Most people working in tobacco control know that one of the most cost-effective ways of reducing consumption of tobacco across populations is to raise the price of tobacco products.¹ In an effort to persuade governments to raise taxes on tobacco, tobacco control advocates have generally included in their proposals an analysis of how tobacco taxes and cigarette prices in their countries compare with those in other countries,²⁻⁶ reasoning that government officials might wish to maintain a high ranking or improve on a lower one.

In recent years advocates have been greatly assisted in their submissions by the publication by the Canadian-based group, the Non-Smokers' Rights Association (NSRA), of the tax rates and prices of cigarettes in 20 selected countries.⁷⁻⁸ These 20 nations include most of the high-taxing countries and a selection of other nations with medium and low tax rates. The NSRA table is updated periodically and includes the price (in each country's local currency and in United States dollars) of 20 cigarettes. It also provides the tax rates and the percentage of the retail price allocated to taxes.

The impact of tax increases on consumption of tobacco products depends not only on the relationship between the tax and the

retail price of these products but also on the extent to which people can afford to buy them. Hence young people⁹ and people on low incomes¹⁰ are more sensitive to changes in price than are older people and those on higher incomes.¹¹

Although possible, it remains very complex to assess the relative affordability of cigarettes in one country compared with others, given factors such as differences in male and female wage rates (affecting both individual and household income) and exchange rate fluctuations. Laugesen has calculated for New Zealand and Australia over the past 30 years the number of cigarettes that one could purchase per hour on average weekly earnings in both countries (Murray Laugesen, unpublished data). It would be of tremendous value to the tobacco control movement internationally if this monitoring could be undertaken regularly for a larger number of nations.

In the absence of such data, I developed an alternative, proxy index of cigarette affordability based on the price of a McDonald's Big Mac hamburger. Each year *The Economist* magazine publishes the Big Mac Hamburger Standard, listing the price in local currency and US dollars of a Big Mac in 33 countries. To produce the table, I used *The Economist's* 16 April 1995 data (p 78), which used prices and exchange rates as of 7 April 1995. To this I added information for Ireland and Germany, obtained from private enquiries. Using the data published by the NSRA on 22 March 1995, I then calculated the "Big Mac index" of cigarette affordability for each country. The Big Mac index is the number of cigarettes that one can buy for the price of one McDonald's Big Mac hamburger. For Australia I updated the NSRA figures to take into account an increase in federal excise duty announced in the May 1995 budget statement and an increase in state franchise fees in three Australian states, which was announced shortly afterwards.

Although not perfect, the Big Mac index gives a reasonable indication of the comparative affordability of cigarettes in each of the countries listed. The index may be useful to tobacco control lobbyists in providing an

additional and memorable perspective on the comparative affordability of cigarettes to youth.

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- 1 Non-Smokers' Rights Association (Canada) and The Advocacy Institute (Washington, DC). *Death or taxes: a health advocate's guide to increasing tobacco taxes*, Aug 1990.
- 2 Non-Smokers' Rights Association (NSRA). *Average retail selling price and total tax incidence for a pack of 20 cigarettes in various countries (1992-1995)*, Toronto, Ontario, Canada: NSRA, 1995.
- 3 Action on Smoking and Health (ASH) (UK). *Submission for a consortium of 60 health groups, November 1993 budget: tobacco taxation. November 1994 budget: tobacco taxation*. London, UK: ASH, 1993, 1994.
- 4 Australian Council on Smoking and Health (ACSH). *Proposal to increase tobacco excise: a submission to the Federal Government*. Subiaco, Western Australia: ACSH, 1995.
- 5 Victorian Smoking and Health Program. *Tobacco taxes: a case for action, May 1992, Federal excise duty on tobacco—options for change*. Melbourne, Australia: Victorian Smoking and Health Program, Nov 1994.
- 6 Public Health Commission, New Zealand. *Tobacco taxation as a health issue: discussion document*. Wellington, New Zealand: Public Health Commission, Mar 1995.
- 7 Sweanor D. *Tobacco taxation in Canada: new directions*. Toronto, Ontario, Canada: Non-smokers' Rights Association, Feb 1995.
- 8 Non-Smokers' Rights Association (NSRA). *The Canadian tobacco tax experience: a case study*. Toronto, Ontario, Canada: NSRA, Aug 1993.
- 9 Warner KE. Smoking and health implications of a change in the Federal cigarette excise tax. *JAMA* 1986; 255: 1028-32.
- 10 Townsend J, Roderick P, Cooper J. Cigarette smoking by socioeconomic group, sex, and age—effects of price, income, and health publicity. *BMJ* 1994; 309: 923-7.
- 11 US General Accounting Office (GAO). *Teenage smoking: higher excise tax should significantly reduce the numbers of smokers*. Washington, DC: GAO, Jun 1989. (Document No. GAO/HRD 89-119.)

Research on the sale of smokeless tobacco to adolescents

To the Editor—Research using self-reported questionnaires or mock purchases indicates that minors can easily purchase smokeless tobacco.¹⁻⁴ In a mock purchase study, only 15% of merchants sold the minors smokeless tobacco.⁴ The focus of this present study was to document the extent to which minors are actually able to purchase smokeless tobacco.

Two 16-year-old males, one Puerto Rican and one white, were selected to purchase smokeless tobacco. Two independent judges rated their appearance, and both judged them to look between 15 and 17. The setting for the study was 60 stores in Chicago, Illinois that sell smokeless tobacco. Stores were selected randomly and divided equally among white, Hispanic, and African-American ethnic geographical areas. In March 1994, each minor attempted to purchase smokeless tobacco at 30 different stores, totalling the 60 stores monitored during this study. Each group of 30 stores consisted of 10 stores from each of the three ethnic communities. If the merchant questioned the minor as to whether he had identification, the minor was instructed to say he did not have any identification with him. If the minor was asked his age, he was instructed to tell his true age.

This study found that 86.7% of merchants sold minors smokeless tobacco. Rates were similar for the two minors (Puerto Rican, 90%; white, 83%; $\chi^2(1) = 0.45$). However,

The Big Mac rating of world cigarette prices, April 1995

Country	Cigarettes per Big Mac
Hong Kong	7.6
Canada (highest-priced province)	9.5
Western Australia, NSW, Victoria (Australia) premium brands*	10.0
Ireland	11.9
United Kingdom	12.9
Western Australia, NSW, Victoria (Australia) budget brands*	13.5
Canada (average, all provinces)	13.6
New Zealand (premium brands)	13.9
Sweden	17.0
Finland	17.0
New Zealand (budget brands)	17.5
Denmark	18.9
Germany	18.4
Canada (lowest-priced province)	21.8
Belgium	23.5
United States (average)	24.6
France	26.5
Italy	30.9
Taiwan	37.1
Switzerland	38.1
Argentina	43.8
Spain	64.0
South Korea	76.7

* June 1995.
NSW = New South Wales.

there was a significant association between illegal sales and the ethnic area of sampling (African-American, 100% sales rate; white, 90%; and Latino, 70%; $\chi^2(2) = 8.08$, $p < 0.05$).

There have been several successful interventions to decrease the sale of cigarettes to minors.^{3,5} For example, in one study, sales of cigarettes to minors were decreased after regular compliance checks were undertaken and laws were enforced that fined merchants for selling tobacco products to minors.³ Perhaps these same methods can be em-

ployed to reduce the illegal sale of smokeless tobacco products to minors.

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Smokeless tobacco or health: an international perspective. Bethesda, Maryland: National Cancer Institute, 1992: 3-10. (NIH Publication No. 92-3461.)

- 2 Orlandi M, Boyd G. Smokeless tobacco use among adolescents: A theoretical overview. *Natl Cancer Inst Monogr* 1989; 8: 5-12.
- 3 Jason L, Ji P, Anes M, Birkhead S. Active enforcement of cigarette control laws in the prevention of cigarette sales to minors. *JAMA* 1991; 266: 3159-61.
- 4 Hoppack KC, Houston TP. Availability of tobacco products to minors. *J Fam Pract* 1990; 30: 174-6.
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**If what happened on your inside
happened on your outside, would you still smoke?**