

Part 2

High Tobacco Taxes Discourage Smoking

Tobacco taxation is an essential policy tool to prevent nicotine addiction among teenagers and to reduce the death toll among people who are already addicted. This is the consensus view of health groups in Canada and in other industrialized countries. International organizations such as the World Bank recommend increased tobacco taxes. Despite its varying public comments, the tobacco industry itself, in its internal documents, acknowledges the effectiveness of cigarette taxes in reducing consumption and preventing tobacco use among teenagers. Indeed, the enormous energy that the industry devoted to obtaining a tax rollback in 1994 provides a clear indication of how it views this issue.

Price Elasticity and Cigarettes

If the cost of bread skyrocketed to \$1000 a loaf, very few people would eat sandwiches; on the other hand, if bakeries were giving it away for free, more bread would be eaten. This fundamental principle of economics is doubtless familiar to the vast majority of Canadians, though they may not have heard the technical term for it, *price elasticity of demand*. Simply put, when the price of a product increases, consumption decreases, and vice-versa. To put a figure on price elasticity, economists usually calculate the percentage drop in consumption for each 1% increase in price. Thus, if price elasticity for a product is -0.8, a price increase from \$1 to \$1.01 will lead to a 0.8% decline in consumption.

The price elasticity of demand depends on a host of factors, including the perceived importance of a particular product, the availability of alternative products, purchasers' income levels and brand image and so on. In the case of cigarettes, there is a complicating factor: nicotine is addictive. For many smokers, addiction obviously makes it harder to reduce consumption (or quit altogether) in response to increases in cigarette prices. However, "harder" does not mean "impossible" for all smokers. In a 1992 report, the U.S. Surgeon General pegged price elasticity for cigarettes at -0.47. Similar figures have been calculated in separate studies of the United Kingdom, Western Europe, Austria, Ireland, New Guinea and Canada.⁹ Interestingly enough, an internal Philip

"There is no question that increasing taxes will cause a decrease in smoking. This point is perhaps best illustrated by the present situation in Canada..."

Philip Morris USA, "Political and Social Trends," Appendix to the 1991 Five-Year Plan, document number 2021342198 in State of Minnesota, et al. v. Philip Morris, Inc., et al.

"Our Forecasting Group has determined that younger adult smokers, particularly younger adult male smokers, tend to be very price sensitive. The effect of a price increase on younger adult male smokers could be three to four times greater than on smokers in general, in terms of negative impact on volume."

Internal RJReynolds memo from Gregory Novak to J.W. Johnston and H.J. Lees, dated Sept. 20, 1982, available on RJR site as doc 50015 1647.

⁹ See R.L. Andrews and G.R. Franke, "The determinants of cigarette consumption: a meta-analysis," in *Journal of Public Policy Marketing* 1991; 81-100. For Canada, see the Health Canada publication by N.E. Collishaw, M.J. Kaiserman and B. Rogers, *Monitoring Effectiveness of Canada's Health-Oriented Tobacco Policies*, 1990.

“...I have a report of a study done about ten years ago that is the only one that I know of that attempted to determine the price elasticity of cigarettes by age and sex. It is quite a good study, published as a National Bureau of Economic Research monograph... According to their calculations, the 20-25 year-olds, and particularly males 20 to 25, are much more sensitive to price than other groups, and the effect of price on this group works mainly through the propensity to start smoking.”

Philip Morris in-house economist Myron Johnson, in a 1992 memo to a fellow executive discussing the impact of California’s 1989 excise tax increase on sales of Marlboro Red brand cigarettes.

Morris marketing study in 1991¹⁰ claimed that elasticity in the U.S. cigarette market was steadily increasing. It forecast that elasticity would hit -0.88 that year, which is higher than most published estimates.

Whatever the precise figure, even tobacco industry analysts agree on the following three things:¹¹

- Short-term price elasticity for cigarettes is lower than for most major consumer products. In other words, because of nicotine’s addictiveness, it takes a much bigger price increase, compared to other products, to trigger an equivalent drop in consumption.
- Long-term elasticity seems to be higher than short-term elasticity. In other words, a major tax hike may cause some smokers to quit in six months’ time, in addition to those who quit right away.
- Young people are more price-sensitive than adults.

Youth Smoking and Cigarette Prices

At least from their parents’ point of view, the economic behaviour of teenagers often seems irrational. Teens are known to spend enormous sums on brand-name, prestige items like running shoes or jackets, when much cheaper, no-name versions are available. The same behaviour has been noted with respect to cigarettes. In countries where discount, no-name cigarettes are widely available, teenagers generally stick with the heavily promoted, big-name brands, despite the extra expense.¹²

The reason is straightforward: teenagers are not just buying running shoes or cigarettes, they are also buying the brand imagery of Nike or Player’s Racing. But young people do not have unlimited resources any more than their elders do. It makes a very real difference to their behaviour whether a pair of Nikes costs the same as three months’ or three weeks’ supply of Players.

There are at least three plausible explanations as to why teenagers are more price sensitive than adults with respect to cigarettes:

- Almost all adult smokers are addicted to nicotine. Many teenage smokers are not yet as seriously addicted.

¹⁰ Philip Morris U.S.A., *Price Elasticity in the Cigarette Industry*, document number 2045540114 in **State of Minnesota, et al. v. Philip Morris, Inc., et al.**

¹¹ See also “Analysis of cigarette price elasticities”, February 1990, prepared by Policy Economics Group, KPMG Peat Marwick for internal use of Philip Morris USA, doc no. 2044982672.

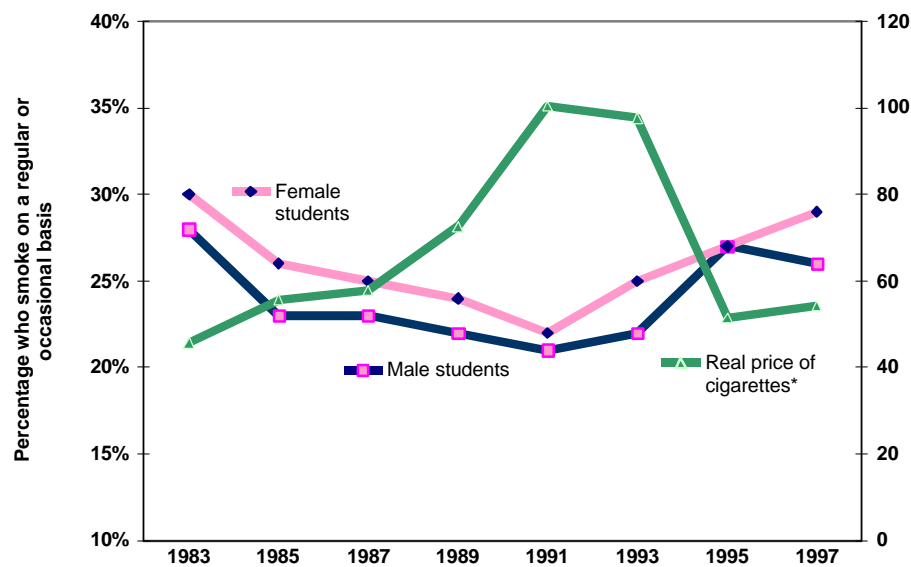
¹² Frank J. Chaloupka, “How effective are taxes in reducing tobacco consumption?” in *Studies in Risk and Uncertainty*, edited by W. Kip Viscusi, Boston, MA, Kluwer Academic Publishers, forthcoming.

- Teenagers generally have less money than adults (though they also tend to have fewer financial obligations).
- All teenagers are *potential* customers for the tobacco industry. Adults in their 30s or 40s who have never used tobacco products are very unlikely to take up smoking. To the extent that high prices can discourage novice smokers, they thus affect only teenagers and young adults.

How big is this difference in price sensitivity between teenagers and adults? According to the 1992 U.S. Surgeon General’s report on Smoking and Health in the Americas, the price elasticity of demand for cigarettes is more than three times higher among youth aged 12-17 (-1.40) than for adults aged 20-74 (-0.42).

A more recent (1998) analysis of U.S. National Health Interview Survey data from 1976 to 1993 confirmed this overall trend. It estimated price elasticity for those aged 18-24 to be -0.58, almost six times as high as for those aged 40 or more (-0.10).¹³

Figure 3
Youth Smoking in Ontario, Grades 7, 9, 11 and 13, 1983 – 1997



Sources: Expert Panel on the Renewal of the Ontario Tobacco Strategy, *Actions Will Speak Louder than Words*, February 1999 (smoking data), Statistics Canada Consumer Price Index (for real price of cigarettes)

* Real price figures include only legally sold, i.e. non-smuggled cigarettes. Average real price in 1991 and 1993 was almost certainly somewhat lower, due to smuggling

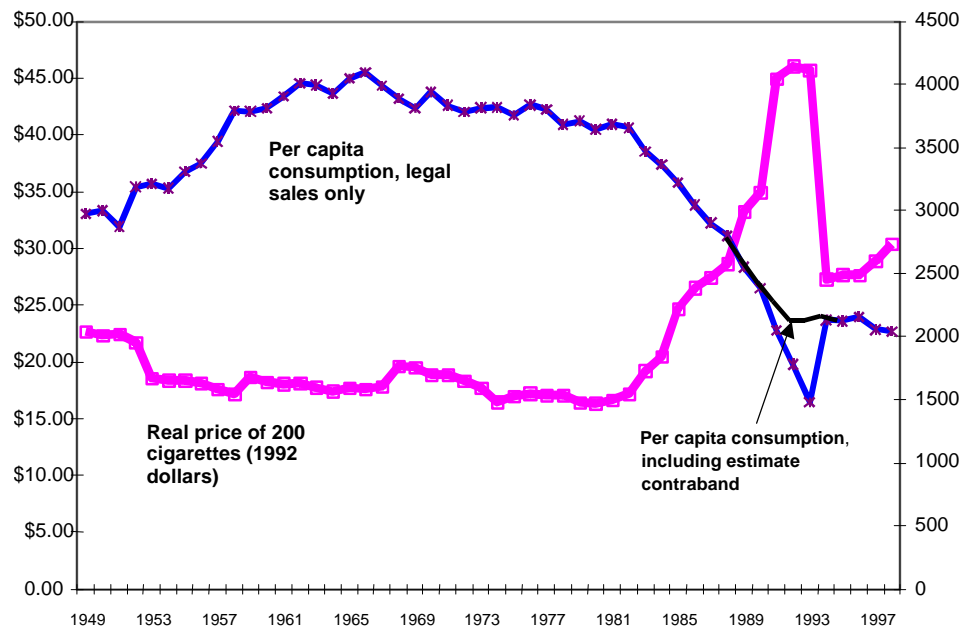
¹³ “Response to Increases in Cigarette Prices by Race/Ethnicity and Age Groups — United States, 1976-1993,” in *Morbidity and Mortality Weekly Report*, 47:29, pp. 605-609.

Historical Experience

The historical record provides striking confirmation of the link between real cigarette prices and consumption. Researchers in Canada, Great Britain, France and South Africa have independently plotted consumption against real prices, and found that the two move in mirror image.¹⁴

Suggesting that the level of tobacco taxes has no measurable impact on the course of the tobacco epidemic, as the Canadian tobacco industry suddenly began doing in 1992 (see Chronology of key dates, p. 39) is as reasonable as suggesting that the law of gravity can be temporarily abolished.

Figure 4A
Real Prices and Cigarette Consumption Canada, 1949-1998

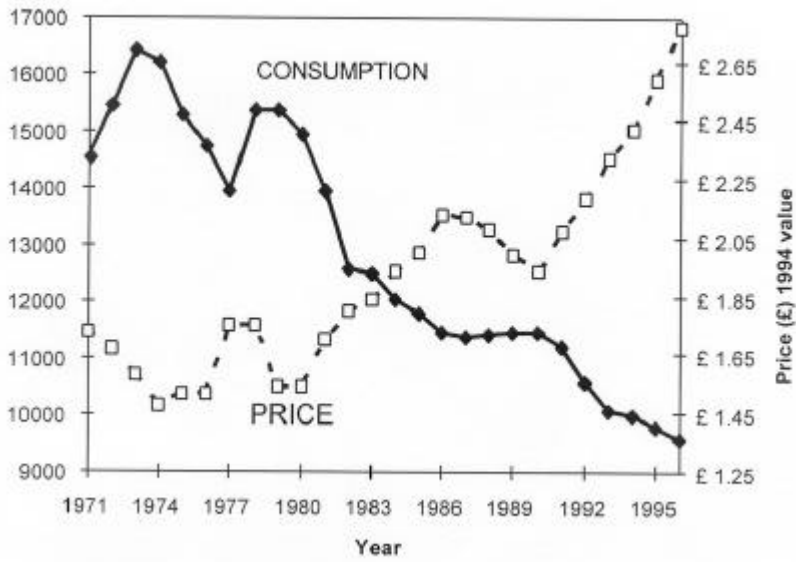


Source: Real price calculated from Consumer Price Index. For calculation of per-capita consumption, see Appendix A, Table G.

NB: Price figures represent only legally sold cigarettes. In high-smuggling years, the effective price was lower.

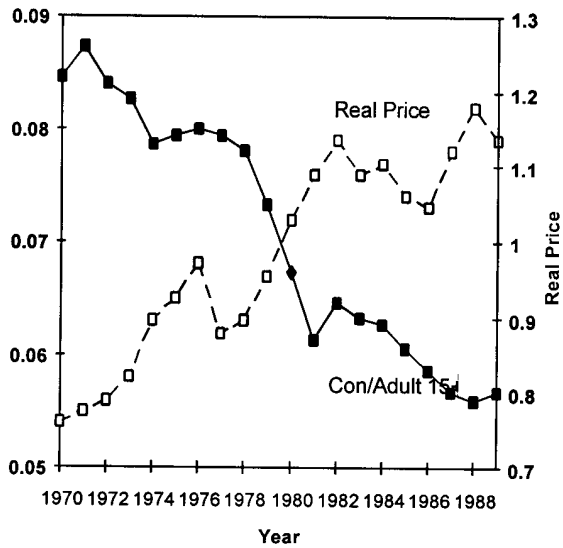
¹⁴ Joy Townsend, "Price and consumption of tobacco," in *British Medical Bulletin* 1996; 52: 32-142.

Figure 4B
 Real Prices and Cigarette Consumption United Kingdom, 1971 – 1996



Source: J.L. Townsend, "The role of taxation policy in tobacco control," in I. Abedian et al., ed., *The Economics of Tobacco Control: Towards an Optimal Policy Mix*, 1998.

Figure 4C
 Real Prices and Cigarette Consumption South Africa, 1970 – 1989

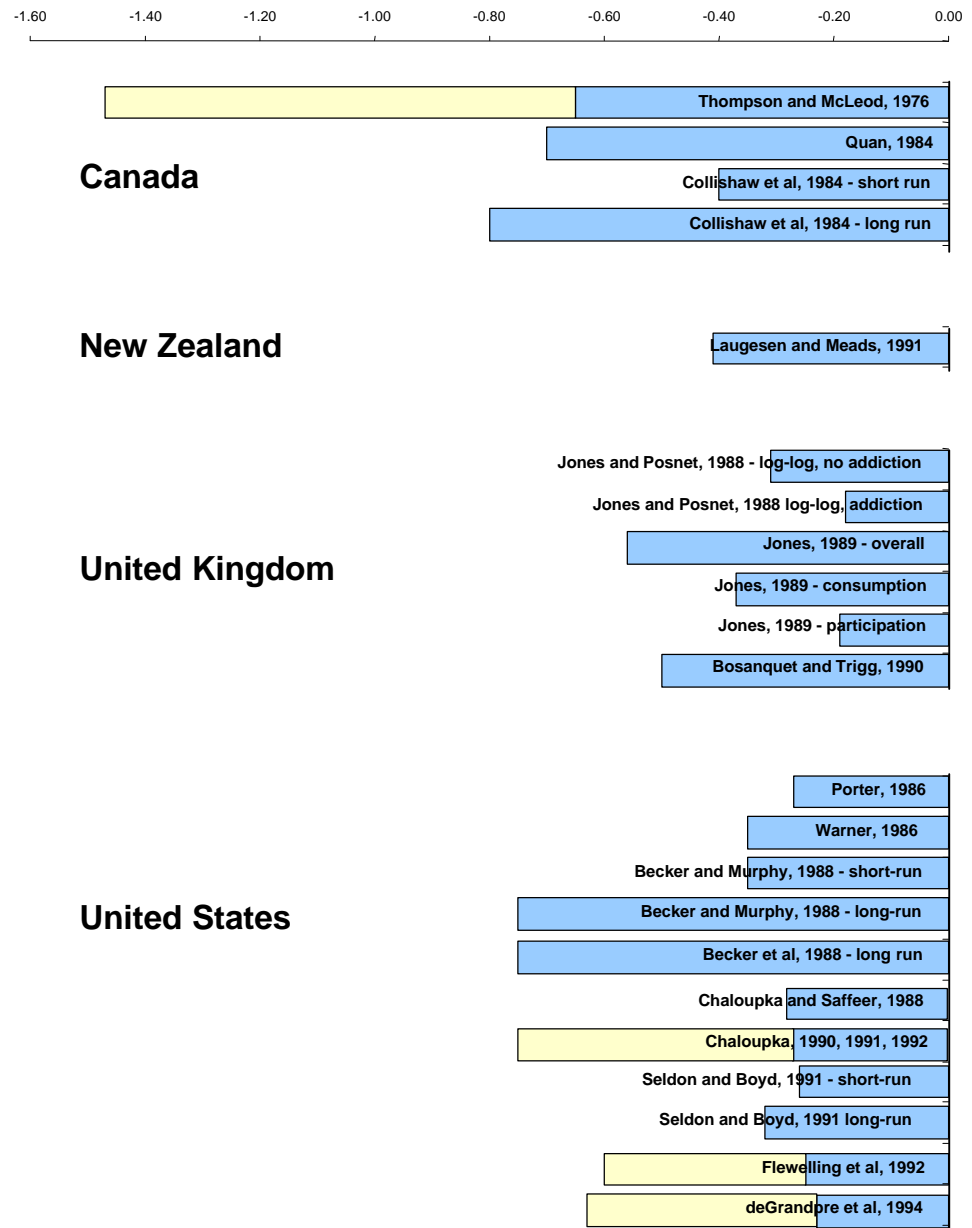


Source: J.L. Townsend, "The role of taxation policy in tobacco control," in I. Abedian et al., ed., *The Economics of Tobacco Control: Towards an Optimal Policy Mix*, 1998.

“The finance department’s second announced objective has been to use taxes to reduce consumption. Let me make it clear -- there is no kidding anyone on this -- it works. That is, taxes do impact on consumption ... there is no question that consumption is down measurably over the last five years and there is no question in our minds that taxes have been a significant factor in that.”

Bill Neville, President, Canadian Tobacco Manufacturers’ Council, testimony before the House of Commons Legislative Committee F on Bill C-10, An Act to amend the Excise Tax Act and Excise Act, September 26, 1991, pp.3:5-3:6.

The Ontario Tobacco Research Unit reviewed the impact of price on tobacco use, and explored the relationship of addiction and other variables to price-response.¹⁵ Their summary of several studies showed consistent measurable benefits to increasing the price of tobacco.



¹⁵, “Evaluating the Effects of Price on the demand for tobacco products : Review of methodologies and studies.” Bernard C.K. Choi, Roberta Ferrence and Anita Pak, OTRU Literature Review Series No. 11, April 1997.

Health Impacts

There are approximately 7 million smokers in Canada, of whom 50% can expect to die of tobacco-related causes unless they succeed in quitting.

Applying the U.S. Surgeon General's estimate of price elasticity of -0.47 , a 10% hike in Canadian cigarette prices (= \$3 per carton, in the case of Ontario and Quebec) could be expected to reduce cigarette consumption by 4.7%. Some of that would come from smokers who cut back but who are unable to quit. Some would come from teenagers deciding not to take up smoking. Much of it would come from adult smokers finally succeeding in quitting.

Applying the U.S. Surgeon General's estimate for participation (smoking prevalence) elasticity (-0.31)¹⁶, Canada could expect to have over 125,000 fewer smokers as a result of even a modest, 10% tax hike in the five low-tax provinces.

Even if the studies quoted by the Surgeon General were off by a factor of two, we are still dealing with a decision that, by itself, could prevent tens of thousands of tobacco-related deaths.

¹⁶ I.e. the portion of price elasticity of demand related to people starting to smoke or quitting smoking, rather than adjusting how much they smoke.