



Tobacco tax as a health protecting policy: a brief review of the New Zealand evidence

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Abstract

Aim To review the evidence relating to tobacco taxation as a health and equity protecting policy for New Zealand.

Methods Searches of Medline, EconLit, ECONbase, Index NZ, and library databases for literature on tobacco taxation.

Results The New Zealand evidence indicates that increases in tobacco prices are associated with decreases in tobacco consumption in the general population over the long term. This finding comes from multiple studies relating to: tobacco supplies released from bond, supermarket tobacco sales, household tobacco expenditure data, trends in smoking prevalence data, and from data on calls to the Quitline service.

For the 1988–1998 period, the overall price elasticity of demand for all smoking households was estimated to be such that a 10% price increase would lower demand by 5% to 8%. Two studies are suggestive that increased tobacco affordability is also a risk factor for higher youth smoking rates. There is evidence from two studies that tobacco price increases reduce tobacco consumption in some low-income groups and one other study indicates that tobacco taxation is likely to be providing overall health benefit to low-income New Zealanders. These findings are broadly consistent with the very large body of scientific evidence from other developed countries.

Conclusions There is good evidence that tobacco taxation is associated with reduced tobacco consumption in the New Zealand setting, and some limited evidence for equity benefits from taxation increases. Substantial scope exists for improving tobacco taxation policy in New Zealand to better protect public health and to improve equity.

Customs and excise taxes on tobacco have long been used by the New Zealand Government to collect revenue. In the previous 25 years, such taxes have been justified by the Ministry of Health and some political leaders on the grounds of protecting public health. Since 1990, there have been four tobacco tax rises above the rate of inflation, in 1991, 1995, 1998, and 2000.

In 2001, 70% of the cost of New Zealand tobacco was made up by the excise and other taxes imposed by government regulation.¹ In comparison with other developed countries, New Zealand had the 16th highest proportion of tobacco price as taxation,² and a packet of cigarettes was ranked seventh in terms of affordability (as measured by minutes of labour to buy a pack of cigarettes).³ Although there is a significant body of data and literature relating to tobacco tax in the New Zealand context, this has only been reviewed once before, in 1995,⁴ and never in the peer-reviewed journal literature.

Methods

Medline searches were conducted for the period 1966 to July 2004, with text word search terms including 'Zealand' and ('tobacco' or 'smoking') and ('tax' or 'price' or 'sales'). These terms were also used in a search of EconLit, ECONbase, and Index New Zealand. Unpublished reports were identified from the bibliographies of review articles on tobacco control in New Zealand, and by searches of the databases of the New Zealand Ministry of Health library, the Treasury library and the electronic newsletter NZ Smokefree e-News. This review has focused on health and equity related issues, with less emphasis on the numerous other aspects of tobacco taxation (such as revenue generation).

Results

In addition to the 12 New Zealand-specific articles identified in the previous review,⁴ this review identified a further 10 publications in Medline and EconLit relating to New Zealand and tobacco tax (or tobacco price or sales).^{3,5-13} Searches based on bibliographies, library databases, and the electronic NZ Smokefree e-News identified an additional 30 other relevant documents.

The impact of tobacco tax or price changes on consumption— During 1981–1991, there were eight economic studies of tobacco demand that used monthly, quarterly, or annual data on cigarettes released from factories (to proxy retail sales).⁴ All of these studies (and the one meta-analysis) indicated that price rises reduced demand (short-term price elasticities ranged from -0.08 to -0.15, and long-run elasticities from -0.07 to -0.52). For a 10% price increase, the demand would fall in the long term by 0.7% to 5.2%. The two studies that examined price reductions found that these were related to significantly increased demand. Analysis of a different data source (weekly cigarette sales from supermarkets) also found that tobacco tax increases reduced sales (at least in the short term).¹⁴

More recently, a Cancer Society report has detailed supermarket cigarette sales data before and after the 1991, 1998, and 2000 budgets (which included tobacco tax increases).¹⁵ For a period of 4 to 6 weeks after the tax increases in these respective years, it found sales reductions of 11%, 10%, and 16% for price increases of 21%, 15%, and 23% respectively.

A Ministry of Health report also describes declines in total tobacco consumption at the national level associated with the tax increases in 1998 and 2000, and for the excise adjustment on loose tobacco in 1995 (where a 38% increase reduced loose tobacco consumption by 17% in the short term).¹⁶ This pattern is consistent with data from the national Quitline, which indicates that the tax increase in May 2000 was associated with a marked increase in the telephone calls to the Quitline (16,000 calls in May 2000 compared with around 6000 per month in the month before¹⁷ and with no other tobacco control intervention introduced). Another analysis found that although tobacco consumption fell during 2000 after the tax rise in May (by 16%), the percentage of the population who smoked only declined by 3% for a 4-month period (April to July) before returning to the pre-tax level.¹⁸ Longer-term data indicate that the May 2000 tax rise reduced tobacco consumption between 2000 and 2001 by 10%.¹⁹

An analysis of household economic survey data and census data has also indicated that tobacco taxation increases reduce consumption.²⁰ This work estimated that the overall price elasticity of demand during the 1988–1998 period for *all* households

with tobacco purchases to be in the range of -0.5 to -0.8. That is, for a 10% price increase, the number of cigarettes purchased by the average smoking household fell by between 5% and 8%.

Price changes appear to have also influenced the type of product smoked. Trends in tobacco released indicate that the tobacco tax increases between 1988 and 1995 induced a shift towards roll-your-own tobacco. Increased taxes on roll-your-own tobacco in 1995 reduced those purchases.¹⁵ Supermarket sales after the 1998 tax rise indicate a renewed move to budget brands and roll-your-own tobacco.²¹

There appears to have been no published New Zealand studies on the impact of tobacco tax increases on youth smoking rates. Nevertheless, recent national survey data suggest that affordability of tobacco is relevant for youth since cigarette smoking was found to be positively related to the amount of pocket money provided to adolescents.⁹ A multi-regional survey also found that buying cigarettes by secondary school students was associated with them having 'more money to spend'.⁵

Impacts of tobacco tax/price on low-income groups—A 1985 New Zealand study considered the regressive nature of tobacco taxation.²² These authors reported that, for the third-to-bottom decile (by disposable income) of families with two adults and three children, over 4.5% of *aggregate* household disposable income went on tobacco. This compared with less than 1.5% for the top two disposable income quintiles. Similarly, a Tobacco Institute publication reported that tobacco taxation in New Zealand was regressive.²³

More recently, one study has reported that for some low-income households 14% of the non-housing budget was spent on tobacco⁷—of which around 70% can be attributed to taxation. In terms of the impact of tobacco taxation *increases*, one analysis examined individual Household Economic Survey (HES) data.²⁴ It reported that Maori and Pacific had significantly higher price elasticities than Pakeha (New Zealand European), resulting in smaller increases in spending after any price rise. Another analysis using HES data for the 1988 to 1998 period reported that “average ‘sole adult and children’ households and Maori ‘sole adult and children’ households reduced the number of cigarettes purchased after a price rise to a greater extent than other types of households”.²⁰

Other recent work has considered the adverse impact of the deprivation associated with financial hardship attributable to tobacco taxation.¹² For all people living in the most deprived 30% of neighbourhoods, the estimated loss of life expectancy attributable to tobacco tax ranged from 0.009 to 0.044 years (i.e. from around 3 to 16 days of lost life expectancy). For this relatively deprived population, the loss of life expectancy attributable to tobacco tax was 37 to 273 times less than that attributable to smoking.

Public attitudes to tobacco tax—One study published in 2002 reported that only 40% of those surveyed considered that higher tobacco taxes would help people to quit smoking.¹⁰ In contrast, a survey in 2003 reported that 71% supported tobacco tax ‘to encourage healthier lifestyles’.²⁵

Discussion

The New Zealand evidence

There are various limitations with the quality of the New Zealand studies relating to tobacco taxation, one being the crudeness of the tobacco consumption data. This data source has often been influenced by tobacco industry practices of releasing products before and after the tax-mediated price rise. Household Economic Survey (HES) data also suffers from under-reporting of tobacco expenditure. There is also a lack of reliable data on the impact of tobacco tax on specific population groups—such as low-income New Zealanders. Nevertheless, much of the work has been published in peer reviewed journals and is of adequate quality to inform policy making. Indeed, one of the studies¹⁴ was included in a recent major systematic review.²⁶

To improve the information available for evidence-based policy making, further studies using HES data are needed. Similarly, the New Zealand work on tobacco affordability and youth smoking needs to be expanded—given that preventing smoking uptake is a strong argument for tobacco taxation.^{26,27}

Overall, it appears that the New Zealand studies consistently indicate that tobacco tax and price increases are related to reduced tobacco consumption. The findings for studies since 1995 are also consistent with those of an earlier review of New Zealand data published in 1995.⁴ Furthermore, the opposition by the tobacco industry based in New Zealand to tobacco taxation²⁸ also suggests that this intervention threatens sales and industry profits.

The available New Zealand evidence indicates that tobacco tax is a regressive tax in terms of the proportion of income spent. Nevertheless, the evidence from two studies is also suggestive that at a population level tobacco taxation *increases* might actually be *progressive* (i.e. there is a greater reduction of consumption in low-income groups and therefore an enhancement of health equity). There is also evidence¹² which indicates that tobacco taxation in New Zealand is likely to benefit health among the most deprived populations (because the harm from tax is small compared to the harm from smoking).

Comparisons with international data

The New Zealand data are consistent with the international evidence, with one recent systematic review reporting ‘strong scientific evidence’ that increasing the unit price for tobacco products is effective in increasing smoking cessation and in reducing consumption.²⁶ Similarly, a review published by the World Bank found that international data on the effectiveness of tobacco taxation to reduce tobacco consumption is convincing.²⁹ An analysis undertaken for the *World Health Report 2002* found that tobacco taxation is the most cost effective tobacco control option in all regions of the world.³⁰

As with many consumption taxes, tobacco taxation is generally considered in the literature to be regressive, with low-income groups being taxed disproportionately, relative to those on higher incomes.^{29,31} In contrast, however, some economists consider that tobacco taxation is probably *progressive* overall, when the benefits of taxation as a ‘self-control device’ are appropriately accounted for.³²

This view is based on survey data from both the United States and Canada on how tobacco excise tax at a state or provincial level is associated with higher subjective well-being or ‘happiness’ among those with a propensity to smoke.³³ However, there remains the problem of the effect on households when smokers do not quit or reduce smoking sufficiently to cut their tobacco spending.^{34,35}

In terms of the possible progressivity of tobacco tax *increases*, the limited New Zealand data is consistent with some international evidence that low-income populations and those with poorer education are more price responsive (i.e. from the United States,^{36–38} United Kingdom,³⁹ and possibly Italy⁴⁰). For these reasons, tobacco taxation *increases* have been described by some as being ‘a progressive public health policy.’⁴¹

Implications for policy makers and the health sector

The major implication of these data is that policy makers and the health sector should continue to support the use of tobacco tax as a key aspect of the country’s multi-component tobacco control strategy.

Nevertheless, tobacco taxation could be refined in several ways:

- **Clearly defining tobacco tax as a justifiable health-protecting tax**—A clear and coherent approach to tobacco taxation is needed by governments, with this tax being *primarily* defined as a public health intervention. This approach fits with the World Bank report on tobacco taxation²⁹ that indicated that a valid rationale for the taxes is to use these as a policy instrument to achieve a desired public health target (e.g. to meet a government’s goals of reducing tobacco consumption and the prevention of smoking uptake by youth). Using this rationale, tobacco tax could be regularly increased up to the point at which government considers its public health goals are achieved. This approach makes good economic sense, in that tobacco taxation increases are one of the most cost-effective tobacco control interventions available.^{29,30,42} Thus, appropriate tobacco taxation policy will mean that Government will ultimately need to spend less on other tobacco control interventions, while achieving its goal of a lower level of smoking in society.

The World Bank report also notes that modern economic theory holds that consumers are usually the best judges of how to spend their money (the principle of ‘consumer sovereignty’).²⁹ However, in the case of expenditure on tobacco, this report and other research suggests that smokers and those starting smoking do not appear to make rational and informed choices;⁴³ they appear to misjudge the risks involved, and have imperfect knowledge on which to base decisions.⁴⁴ This is partly because the public have a very poor understanding of the nature of nicotine addiction and its severity, which means that starting smokers underestimate the dangers and costs.⁴⁵ Smokers may not accurately perceive their own risks because of over-optimism, an illusion of control, lack of high impact information, and/or an inability to evaluate the available information.^{46,47}

- **Adopting a long-term strategy of regular price increases combined with smoking cessation support**—Having a routine system of annual tobacco taxation⁴⁸ increases has been recommended in a ‘World’s best practice’ review of tobacco taxation and for the New Zealand setting.⁴⁹ This approach would also signal to smokers in a transparent manner that smoking will continually become

more expensive over time (i.e. that it is an unsustainable addiction in economic terms). Such an approach would also allow for maximum synergy between the price rises and smoking cessation publicity, and would also give smokers time to prepare for a quit attempt. The UK Government has emphasised the importance of the health basis for tobacco tax and has raised the tax on tobacco by 5% per year for a number of years over and above the inflation rate.⁵⁰

New Zealand successfully followed this strategy in 1988–89, when the Government announced the raising of tobacco tax by three steps over 10 months (each tax rise was by 50 cents).⁵¹ Accompanying these increases were a range of paid and unpaid health promotional strategies to encourage quitting.

- **Protecting low-income New Zealanders**—Tobacco taxation increases may particularly benefit low-income groups at a population level, given the available New Zealand (and some international) evidence for tax increases being progressive. Nevertheless, for those low-income smokers exposed to tax *increases*, it is desirable to maximise the quit rate and minimise the potential harm from financial hardship for those in the households of smokers who do not quit. Maximising the quit rate could be achieved by further strengthening support for smoking cessation (i.e. enhanced promotion of the free national Quitline service; use of subsidised nicotine replacement therapy; and use of culturally-appropriate services such as the Aukati Kaipapa programmes).
- **Adopting a dedicated tobacco tax**—Unlike alcohol and gambling tax revenue (parts of which are used for specific purposes), no part of tobacco tax revenue is formally allocated to tobacco control, or any other purpose. Dedicated taxes can be necessary where the policy process otherwise chronically underfunds a critical public service. Tobacco control appears to have one of the strongest arguments for such a revenue stream, as otherwise, the Government uses the revenue from the sale of a lethal, addictive drug for the benefit of the general population.

New Zealand smokers and their households (who are more likely to be poorer, Maori or Pacific Peoples) are used as a revenue source with a relatively small effort to help free them of nicotine addiction. Government spending on tobacco control is equivalent to less than 3% of the tax revenue from tobacco.⁵² Far more funding for tobacco control is needed, given the scale of the smoking problem.⁵³ A number of other jurisdictions have dedicated tobacco taxes²⁹ and there is evidence that these have greatly assisted tobacco control efforts (e.g. Massachusetts in the United States⁵⁴).

- **A special inquiry on tobacco taxation**—Several issues about New Zealand tobacco taxation policy require an explicit, expert and public consideration— including ethical issues⁵⁵ and the optimum basis for policy, tax rates, revenue use, and sources of official advice. Since 1988,⁵⁶ there has been no specific inquiry on tobacco taxation at Ministerial or Royal Commission level. Such an investigation could allow a well-resourced, expert, and public deliberation. Considering that Government obtains over NZ900 million dollars a year from taxes on tobacco, and the sub-optimal policies described above, a high level inquiry appears therefore to be a minimal requirement to ensure that the policy basis, ethics, and effectiveness is optimal.

Conclusions

There is good evidence that tobacco taxation is associated with reduced tobacco consumption in the New Zealand setting, and some limited evidence for equity benefits from taxation increases. The impact of taxation on consumption is consistent with a very large body of strong scientific evidence from other developed countries.

Major options for further improving tobacco taxation policy include:

- Clearly defining tobacco tax as a justifiable health-protecting tax;
- Adopting a long-term strategy of regular price increases combined with improved smoking cessation programmes; and
- Dedicating a proportion of the tobacco tax revenue for tobacco control.

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Acknowledgements: George Thomson received funding from the NZ Heart Foundation, the Auckland and Wellington Divisions of the Cancer Society of New Zealand, and the University of Otago Research Committee.

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