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Use of pricing and tax interventions for protecting health: potential relevance for New Zealand of recent international developments

The New Zealand (NZ) Government uses a number of excise taxes and levies for public health reasons (e.g. on tobacco, alcohol and gambling). It has also previously used other pricing policies for health-related goals, such as subsidised milk for school children, and additional tax to facilitate the phase-out of leaded petrol (gasoline). Internationally, specific taxes can have public health implications such as decreasing soft drink (soda/pop/carbonated beverage) consumption,[1] and in preventing obesity and chronic disease.[2]

To further advance consideration of pricing and tax policies in the NZ setting, some recent international developments are described below (Table 1). These were all reported on at the World Congress on Health Economics in Toronto in July 2011, which was attended by the first author (NW).

Table 1. New information relating to pricing and tax interventions of potential relevance to public health in developed countries such as New Zealand* (reported at the World Congress on Health Economics, Toronto, July 2011)

Topic area	Detail on the evidence and arguments	Potential relevance to NZ
Tobacco tax – evidence	A summary of the findings of the recently published IARC Cancer Prevention Handbook on tobacco excise taxes and prices was reported. This work highlighted the strong evidence base for this intervention in reducing tobacco consumption, promoting cessation and preventing youth uptake.[3] Also presented was a systematic review which reported that tobacco control programmes were cost-saving or cost-effective (including tobacco excise taxes).[4]	While tobacco tax is a well established intervention in NZ, there is scope for refinements (e.g. making larger and above-inflation tax increases a routine annual event if NZ is truly to become smoke-free).
Tobacco tax – synergies	A study from Taiwan reported that: "the combination of price strategy (i.e. increase tobacco tax) and non-price strategy (i.e. smoke-free act) seems to have greater impact on motivating smokers to quit than a single strategy".[5]	NZ could make better use of combining tobacco tax increases with other interventions, as previously suggested.[6]
Tobacco tax and spill-over benefits for young teens	A US study found that increases in tobacco tax primarily lower youth smoking by discouraging purchase. But taxes also reduced the "social market" for young teens (where cigarettes are obtained by borrowing, buying [illegally], or stealing cigarettes). That is "among 14- through 15-year-olds, a one-dollar tax increase leads to a 0.20 reduction in the probability of borrowing".[7]	This evidence is relevant to strengthening the arguments for higher tobacco taxes in NZ to prevent uptake by young teenagers.
Fast-food prices and obesity	A US study found an association between lower fast-food prices and increased obesity. By using an "instrumental variables approach" (an econometric method for getting rid of confounding), the authors considered that they produced more robust results than previous work. As such, this work now provides stronger evidence that lower fast-food prices do have a role in driving recent worsening obesity trends in the US.[8] Another US study found that increased fast-food prices were	This evidence is relevant to strengthening the arguments for considering specific excise taxes on unhealthy food in NZ. More generally, the evidence is increasing that structural

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	associated with lower body mass index (BMI) in men but not in women (overall). This association was also significant for low-income men and low-income women.[9] Other US research found that the percentage body fat in children is more responsive to food prices and various measures of physical environments than is BMI (the traditional measure of obesity).[10]	interventions (e.g. changes to price and the urban environment) are far more effective than personalised interventions (e.g. dietary advice) to address the obesity epidemic.
Food taxes and subsidies and obesity	Work presented at a Pre-Congress event described modelling of interventions to control obesity. This work reported that the fiscal measures of subsidising fruit and vegetables and taxing foods high in fat would be cost-effective (and actually cost-saving) for European countries in the OECD. Indeed, these fiscal measures were the most cost-saving of the nine interventions studied. A full report on this work has been published.[11]	These approaches are of particular relevance given some NZ research of relevance to food price discounts[12,13] and political interest in removing GST from fruit and vegetables or various basic foods (Labour Party and Maori Party) and voucher cards for beneficiaries that allow purchasing of food but not tobacco or alcohol (National Party).
Soft drink (soda) taxes	A study examined the association between state-level soda taxes and adolescent BMI in the US. Preliminary results were that "higher soda tax rates are associated with lower youth obesity prevalence, in particular among low-income youths".[14] This is consistent with the results of previous studies on such beverages.[2] Discussion at this presentation suggested that a number of US states and cities have recently (or are planning to) raise soda taxes (which currently are at relatively low levels in states that use them).	This evidence may contribute to the case for either soft drink taxes or a more comprehensive excise tax on various unhealthy food products in NZ.
Taxing alcohol, tobacco and unhealthy food	A presentation at a Pre-Congress event described ACE-Prevention modelling work for Australia. Each of the three taxation interventions studied (covering alcohol, tobacco, and unhealthy food) were reported to be cost-saving. A full report on this work has been published,[15] along with a journal article covering alcohol taxation.[16]	Such modelling work is likely to be applied to the NZ situation (Burden of Disease Epidemiology, Equity and Cost-Effectiveness (BODE3) Programme; www.uow.otago.ac.nz/BODE3-info.html).
Petrol (gasoline) prices	A study using the American Time Use Survey reported that: "higher gasoline prices are associated with an overall increase of physical activity that is at least moderately energy intensive. … One of the major components of this increase appear to be an increase in moderately energy intensive housework – such as interior and exterior cleaning, garden and yard work, etc" (probably related to lower use of more expensive hired help).[17] In contextualising this work, the presenter referred to another study that found that lower gasoline prices were associated with increased obesity.[18] On a related issue, a US study reported that increases in public transit availability (at the small area level) were associated with a significantly higher probability of exercising by residents. "These findings are particularly strong for White and Hispanic males, employed individuals, and those with middle income". There was also a "small but statistically significant decrease in BMI" for those with increased public transit availability.[19]	This evidence may contribute to encouraging local NZ research on the health impact of petrol (gasoline) taxes and the potential benefits of subsidising public transport.

Note: * The coverage in this table of pricing and tax instruments was focused only on studies for developed countries and on aspects of primary prevention (e.g. pricing around pharmaceuticals is not considered). Furthermore, studies of limited relevance to the NZ situation, are not described.

In summary, there are a number of international developments around pricing and taxation policy of potential relevance to protecting public health in developed countries such as NZ. These interventions could all benefit from further study in the NZ context to identify the potential: implementation costs, health gain, savings to the health sector, and revenue generated for government (e.g. that could allow for tax cuts elsewhere or enhanced health spending elsewhere). In particular, we need to be aware that overall health benefit for the population does not necessarily lead to reductions in health inequalities. This highlights the need for all pricing interventions to be accompanied by studies on the distribution of the costs and benefits to low-income New Zealanders, Māori and Pacific peoples.

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