

Item #25

Summary of Treasury Working Paper on sugar tax (Gardiner, 2016)

Draft summary of Treasury Working Paper on sugar tax, prepared for internal use only, 12  
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## Summary

**Gardiner, A. (2016). Implications of a Sugar Tax in New Zealand: Incidence and Effectiveness. New Zealand Treasury Working Paper 16/09. November 2016.**

This working paper consists of three parts: A description of the problem motivating the sugar tax debate; a review of some of the literature on effects of sugar taxes; and, an analysis of New Zealand household survey data to determine the potential incidence of a SSB tax and a broader sugar tax on New Zealand households.

The paper notes that the social costs of obesity are well-established and that economic theory offers some justification for government intervention to help incentivise the behaviours that are consistent with individuals' long term health goals. A direct link between high SSB consumption and a range of negative health effects is acknowledged. However the report highlights the weak links in the intervention logic from a tax to a price increase, to a reduction in consumption, to reduced caloric or sugar intake, to reduced risk factors, and ultimately to reduced morbidity and mortality.

The literature review included in the paper covered the share of total energy intake attributable to SSBs, the relationship between socio-economic status (and other household characteristics) and obesity, the elasticity of demand for sugary products, and the effectiveness of sugar taxes.

The paper notes that when the percentage of total energy intake attributable to SSBs is considered, a tax appears to be poorly targeted. It cites Ministry of Health data that suggests 5% of total energy intake is attributable to non-alcoholic beverages (some of which will not be SSBs), these being the fifth most important contributor to total energy intake. As a percentage of total sugar intake, SSBs are more important but are still only the second highest source of sugar for New Zealand adults.

Data from the NZ Adult nutrition Survey is referred to in noting that there is a positive correlation between frequency of soft drink consumption and neighbourhood deprivation, a relationship that is also observed overseas although to varying degrees.

In addition to having a higher total energy intake, Maori and Pasifika peoples, especially males and teenagers, are found to derive a higher *proportion* of total sucrose intake and of total energy intake from non-alcoholic drinks. Children in general obtain a higher proportion of daily sugar intake from SSBs than adults.

### Elasticities:

The paper notes that there is wide variation in the methods used to estimate the extent to which consumers respond to price increases (elasticities). Only one study was identified that specifically estimated elasticities for the groups that would be targeted by a sugar tax (those with greatest consumption or who derive the greatest proportion of sugar or energy from SSBs). Many of the identified studies did not distinguish between sugar-sweetened and artificially sweetened products. The range of own-price elasticities (the responsiveness of demand for the targeted good to an increase in the price of the targeted good) was from -0.63 to -1.3. The only study that looked at specific groups found that Maori were less responsive to price increases than non-Maori.

The paper also notes that cross-price elasticities (the change in demand for other, particularly untaxed substitute and complement goods, in response to a change in price of the targeted good) are essential to understanding how consumers respond and whether any health benefits might be



expected from a tax. Some studies found that lower income consumers may be more price sensitive with respect to the targeted good, however those who are highly price sensitive are at higher risk of substituting to lower priced taxed items or untaxed items, many of which may be equally unhealthy.

The literature review revealed limited data on cross-price elasticities and counter-intuitive results where results were reported. This was considered to be a major area of incomplete information. The claim that a sugar tax would have “progressive” health effects (greater health benefits for those who are poorest and least healthy) is put in doubt by the lack of evidence as to the likely substitutions that may occur.

A literature review of the effectiveness of sugar taxes revealed that two types of study are found: those that use empirical data from contexts in which such taxes have been applied, and those which use econometric modelling based on estimates of price elasticities to derive likely impacts. The former are mainly based on low and ineffective taxes with negligible health effects, which the latter are based on assumptions, including the assumption that a tax will always be fully passed on to consumers.

The author investigated the possible incidence of a sugar tax in New Zealand using a dataset of household expenditure from the Household Economic Survey (HES). Two scenarios were evaluated: a tax on SSBs, and a broader tax on sugary food and drink items<sup>1</sup>. Weighted average budget shares were calculated for different types of households based on total annual household expenditure, household composition, and ethnicity of the household head.

The analysis confirmed the expected result that for most population groups, there is a negative correlation between total household expenditure and expenditure on targeted products (the poorer the household, the greater the fraction of total expenditure on sugary products).

For all households together, a tax on SSBs only was found to have mildly regressive effects and a tax on sugary foods and drinks was found to be moderately regressive. For low income households, both taxes would be slightly more regressive and the regressivity for poorer households increases if there are children. Regressivity is also expected to be greater for Maori and Pacific people than for all households, but the effect of income on Maori households has the opposite effect of that on all households because higher income Maori households spend a greater proportion of household income on SSBs than lower income Maori households. The effect on Pacific households is expected to be more regressive than for all households. The author cautions, however, that the sample sizes for Maori and Pacific households are small.

Overall, the paper presents a compelling case for the need for further research to inform the question of effectiveness of a sugar tax. In particular, the paper cautions that regressivity could be a concern and that there is insufficient evidence to support claims that a sugar tax could be appropriately targeted or effective at delivering health benefits.

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<sup>1</sup> SSBs, chocolate, ice cream, cakes, biscuits, confectionery, desserts, sugar and sugar variants.