**SUPPLEMENTARY MATERIAL**

*Description of studies evaluating existing SSB taxes*

Powell et al (27) examined the association between state-level grocery store and vending machine SSB taxes over a 10-year period from 1997 through 2006 and adolescents BMI from repeat cross-sectional surveys with individual-level data from the Monitoring the Future (MTF) study. SEP was measured using parents education.

Sturm et al (28) combined data on existing state level SSB taxes with individual level national data from the Early Childhood Longitudinal Study-Kindergarten Cohort on one year weight change, and cross sectional data on total consumption of SSBs in the past week, and consumption of such beverages at school. From this data they estimated the association between differential existing SSB tax rates across states (over and above the state level tax on other foods) and children’s SSB consumption and weight gain.

Fletcher et al (29) used a set of total (total tax collected on soft drinks after accounting for sales taxes, food exemptions, and specific excise taxes) and incremental (tax on soft drinks relative to the level of taxation on other foods) SSB taxes at the state and quarter level between 1990 and 2006 and individual self-reported data on adults BMI from the 1990 through 2006 waves of the Behavioural Risk Factor Surveillance System (BFRSS).

*Description of studies where the primary result were estimated price elasticities*

Ni Mhurchu et al (30), used food expenditure data from national household economic surveys in 2007/08 and 2009/10 and Food Price Index data from 2007 and 2010 in an Almost Ideal Demand System to estimate price elasticities for a range of dietary products, including SSBs, for household income quintiles in New Zealand.

*Description of modelling studies*

Finklestein et al (31) used purchasing and price records from the US 2006 Nielsen’s National Consumer Panel combined with data on the calorie content for seven beverage categories from Gladstone Interactive Services or via Web searches, in a 2-part marginal effects model to simulate the impact of a 20% and 40% sales tax on either carbonated beverages or all SSBs.

Lin et al (22) used the 1998-2007 Nielsen National Consumer Panel to estimate beverage demand price elasticities and combined this with data from the 2003–2006 National Health and Nutrition Examination Survey to estimate the income specific (dichotomised at 185% of the US Federal poverty guidelines) impact of a 20% excise tax on SSBs on changes in beverage consumption, net calorie intake, weight loss, and body weight status. To do this they used both a static demand model to translate reduced energy intake into reductions in body weight and obesity prevalence (holding constant the calorie-to-weight relationship) and a dynamic demand model where (accounting for reductions of energy expenditure over time). Results presented in this review are derived from their preferred dynamic model.

Zhen et al (32) used the 2004-2006 US Nielsen National Consumer Panel data to estimate the income-specific (dichotomised at 185% of the US Federal poverty guidelines) impact of 0.5c per ounce excise tax on SSB consumption, taking into account habit formation (to account for beverage addiction). They used a dynamic extension of the Almost Ideal Demand System and presented results in the short run and long run (to investigate the plausibility of beverage addiction). The authors also present results under scenarios of myopia (consumers ignore the effects of current price on future utility) and rational choice (effects of current purchases on future utility are accounted for through user costs). In this review we present the results from their preferred long-run analyses for both the scenario of myopia and the scenario of rational choice (as the authors suggest different preferred models for each income group; conclusions do not differ according to the model used). Briggs et al (33) derived data on prices and purchasing from the 2010 UK Living Costs and Food Survey to estimate an almost ideal demand system to derive SSB demand own and cross price elasticity estimates by income thirds within the UK. These price elasticity estimates were used to predict the change in purchasing of 12 different drink categories as a result of a 20% sales tax on any soft drinks with added sugar. The percentage reduction in SSB purchase was applied to the 2008-10 National Diet and Nutrition Survey to estimate the change in SSB consumption and to derive the net change in energy intake. This was combined with data from the 2010 Health Survey for England and the 2010 Scottish Health Survey in a comparative risk assessment model to further simulate the effect of the tax on changes in mean body weight and obesity prevalence. The relationship between a change in total energy intake and a change in body weight was derived using a dynamic weight-loss model. Briggs et al reported price elasticity and consumption changes separately for concentrated and non-concentrated SSBs, but because the latter comprised of carbonated beverages with added sugar, energy drinks and fruit drinks with added sugar, we only report on these results as they are most consistent with the other studies included in this review. Reported results on changes in total energy, weight and obesity prevalence take changes in all beverage categories into account.

Briggs et al (34) used existing price elasticity estimates from the literature (a conservative estimate derived from a systematic review of the literature and the price elasticity of SSB demand from a 1980’s special soft drink excise tax) to estimate the effect of a 10% SSB excise tax on SSB purchases and consumption in Ireland. OPE was assumed to be -0.9 across all income groups. This data was combined, in a comparative risk assessment model, with data on SSB consumption and obesity prevalence from the 2007 Survey on Lifestyle and Attitude to Nutrition (SLAN) to estimate the income-specific (categorised as tertiles based on net household income) effect of the tax on population obesity prevalence.

Sharma et al (35) used 2010 Australian Neilsen National Consumer Panel data, with quarterly purchases of 10 non-alcoholic beverages, in an Almost Ideal Demand System to calculate own and cross price elasticities of demand by income level. Income was divided into quintiles and categorised as low (bottom fifth), medium (second, third and fourth fifths) and high (top fifth). These price elasticity estimates were used to derive the effect of a 20% sales tax and a 20c/L excise tax on SSB consumption, net energy reduction and body weight by household income level. To estimate the net reduction in energy consumed, price elasticity estimates were combined with data on the energy content of these beverages as reported in the Nutrition Tables of Australia (NUTTAB, 2010). Using the energy to weight loss conversion rate by Hall et al (2011), which assumes that a change in daily energy intake of 100kJ for average overweight adult will lead to a bodyweight change of 1kg per year, Sharma et al also estimate the change in weight following their hypothetical tax rates for each income group.

Zhen et al (36) used Neilsen National Consumer Panel data to estimate income specific (dichotomised at 185% of the 2006 federal poverty line ) demand elasticities of 23 food and beverage categories, including three major SSB categories (regular carbonated soft drinks, sports/energy drinks and fruit drinks), using an incomplete demand system. Although income specific price elasticity estimates (both OPEs and CPEs) were estimated and used as inputs in simulation models, these were not reported in the manuscript, but were available from authors. These demand elasticity estimates were used to simulate the effect of a 0.5c per ounce SSB excise tax (approximating an average increase in retail SSB price of 26%) on household purchases of calories and on the nutrients, fat and sodium. Results were derived from a number of comparative models but we only include results from the preferred model herein, which accounted for price endogeneity.