

# *Using Food and Beverage Price Interventions to Address Obesity*

**JoAnne Sauder**

The high rate of obesity in Canada is an increasing challenge to public health. This paper will examine the possibility of using price interventions as a strategy to address the problem of obesity. Price interventions could include taxes on unhealthy foods and subsidies on healthy foods. Taxes may help individuals internalize the true cost of the food they eat, discourage unhealthy purchases and provide money to support programs that promote healthy eating. Obesity is a challenging problem with many social, economic and environmental factors. There is no simple solution to obesity. Price interventions may be an important addition to a larger strategy to reduce obesity.

Currently, it is difficult to establish the efficiency of price interventions; more research is required in this area. Until this occurs, a reexamination of the definition of basic groceries under the goods and services tax/harmonized sales tax (GST/HST) to ensure that it promotes healthy eating would be a wise first step. This paper will start by examining obesity in Canada and its contributing factors, including the role of agricultural subsidies. Next, will be an examination of price interventions based on public health policy and as a response to the market. Lastly, will be a consideration of what forms food and beverage taxes and subsidies could take.

## **Obesity as a Public Health Concern**

Obesity in Canada is a public health concern; it affects the quality of life of many individuals in Canada and is a significant economic drain. The rate of obesity in

Canada is 23%.<sup>1</sup> The effect of obesity is an increase in hypertension, type II diabetes, gallbladder disease, coronary artery diseases, osteoarthritis, stroke and certain types of cancer.<sup>2</sup> The cost of obesity to the Canadian health care system has been estimated at \$2.1 billion.<sup>3</sup> The cost total to the Canadian economy has been estimated to be \$6.6 billion.<sup>4</sup> The Federal, Provincial and Territorial governments have committed to reduce the effect of obesity in Canada.<sup>5</sup>

One contributing factor to obesity is the cost and oversupply of energy-dense foods. Energy-dense foods are those that provide a large amount of calories relative to their weight. They are less satisfying than energy-dilute foods and lead to overconsumption.<sup>6</sup> The price of food has continually fallen and there is an oversupply of food.<sup>7</sup> Calorie intake has increased in Canada; the total calories consumed by Canadians increased by 17% between 1991-2001.<sup>8</sup> The types of foods consumed have also changed. Canadians are consuming increasing amounts of energy-dense foods. These include cream, fats, oils and soft drinks.<sup>9</sup> Canadians now have access to greater amounts of less satisfying energy-dense foods at lower prices and they are consuming more of them.

Rates of obesity are related to socio-economic status. Rates of obesity are higher for individuals with lower levels of education and lower incomes.<sup>10</sup> This may be the result of the high price and lack of access to energy dilute foods in low income areas.<sup>11</sup> Some low income families incur food insecurity, making unhealthy, energy dense foods their most viable options.<sup>12</sup> There may also



be a link between the vulnerable situation of scarcity and the impulse to overeat.<sup>13</sup> Aboriginal Canadians have high rates of obesity and food insecurity.<sup>14</sup> Rural areas also have significantly higher rates of obesity and food insecurity than large urban areas.<sup>15</sup> In addressing obesity in Canada, targeting populations that have higher rates of obesity and ensuring the methods used to reduce obesity used are effective for them will result in more effective strategies.

## Agricultural Subsidies

In considering price interventions, it is important to consider how the market has been skewed by agricultural subsidies.<sup>16</sup> The most highly subsidized agricultural commodities in Canada are corn, soybeans, tobacco, beef, sheep and milk.<sup>17</sup> Agricultural and agri-food expenditures in Canada are approximately \$8.4

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billion.<sup>18</sup> The agricultural support system grew out of the post-WWII world when European and North American governments became focused on producing large quantities of affordable food.<sup>19</sup> As a result, the American food supply provides 3 900 calories per day per person.<sup>20</sup> One study found that the Europe Union's common agricultural policy results in the deaths of 9000 people a year due cardiovascular causes and strokes.<sup>21</sup> Similar consequences may result in Canada from agricultural subsidies.

Corn and soybeans in Canada receive large subsidies and are used to produce energy-dense foods.<sup>22</sup> In the United States, similar subsidies have resulted in 4 million more acres of land being cultivated in corn.<sup>23</sup> The result of these subsidies on final product prices is debatable. One opinion is that without these and similar subsidies, the price of a fast food meal would triple.<sup>24</sup> However, research done for the National Corn Growers Association

found subsidies have little effect on final prices.<sup>25</sup> Even if subsidies do not greatly affect the price of energy dense-food products, they do encourage overproduction and overconsumption.

## Price Interventions as Public Health Regulation

Price interventions could take a number of forms, including taxes based on nutrient composition (i.e. a fat or calorie tax), product based taxes (i.e. a junk food or soft drink tax) or subsidies on fruits and vegetables. The purpose of such measures is to help individuals internalize the true cost of what they eat, make healthy foods more affordable and unhealthy foods more expensive. One way to justify a price intervention is as a public health measure. Public health is a communal good.<sup>26</sup> Numerous factors that contribute to obesity are communal in nature and not specific to individuals. As a large part of the problem is communal, part of the solution must also be communal; policies based on individual willpower and knowledge are not likely to be effective alone.<sup>27</sup>

One way to justify a public health intervention is the harm principle. The harm principle examines when the government can intervene, against an individual's will, to reduce harm. Its use is controversial where competent adults are posing a risk to themselves instead of society as a whole.<sup>28</sup> But the harm principle also provides for protection of those who are vulnerable.<sup>29</sup> This vulnerability may result from numerous sources, such as: inadequate information, inability to process complex scientific information, limited willpower of individuals and social, economic and environmental constraints.<sup>30</sup> Children are also considered vulnerable parties.<sup>31</sup> Most adolescents in Canada choose food without regard to what impact it will have on their health and their choices are increasingly unhealthy.<sup>32</sup> Obesity in children is very important as 80% of adolescents who are obese will continue to be so as adults.<sup>33</sup> One reason cited to not intervene in the market place is that individuals are rational actors internalizing the short-term benefits and long-term consequences of their actions; critics view price interventions as paternalistic and disrespectful of the dignity of individuals as autonomous agents.<sup>34</sup> Even if, despite the oversupply and advertising of energy dense foods, adults are able to act as rational autonomous agents, children cannot be expected to fully internalize the long-term health consequences



of their food choices.<sup>35</sup> Price interventions may be more effective than providing greater information for vulnerable parties, both children and adults.<sup>36</sup>

Lawrence O. Gostin has set out a five step process for evaluating public health regulation.<sup>37</sup> The first step is to demonstrate risk. Particularly important here is the severity, probability and duration of the risk. Globally, being overweight or obese is the seventh highest risk factor for mortality and eighth for disease.<sup>38</sup> As the rate of obesity in Canada increases, so does the risk both now and in the future.

The second step is to demonstrate the intervention's effectiveness; this is difficult to do based on the information we currently have. Simulations have been performed. Some have promising results, others do not.<sup>39</sup> One study of a ten year snack tax in Maine did not find it to be effective; although it provided money for other programs to fight obesity.<sup>40</sup> When a 10% general sales tax was added to fast food purchases in Australia, McDonald's was found to have an initial 10% decrease in sales; but consumers soon forgot about the price increase and sales rebounded.<sup>41</sup> Studies have not been performed on the effect of the GST in Canada.<sup>42</sup> More evidence is required on whether price interventions are effective.

The third step is to assess economic costs. The benefit of a tax is that it can provide resources for obesity reduction strategies. It would not create an economic burden on the government. The fourth step is to assess the burden on individuals. A tax would not be invasive like a quarantine of an ill individual. But, it would be of long duration and could increase food insecurity unless paired with an adequate subsidization program.

The last step is to assess the fairness of the policy. The regressive nature of such a tax means that it will have the greatest affect on those with low-income.<sup>43</sup> A tax would be regressive because people with low incomes have to spend more of their income on food and so any tax on food will cost them a larger percentage of their income. In order for any food tax to be fair, it is important that the money gained from the tax is used to improve the health of those with low incomes. If this tax simply offsets tax that would be gathered elsewhere, those with low incomes will be paying more tax and have less income to buy nutritious foods.<sup>44</sup> As noted earlier, those with low incomes and food insecurity are at greater risk

of obesity; reducing their income further would likely increase their risk of obesity, not decrease it.

## Price Interventions as a Response to the Market

The second argument for price interventions is that a market failure has occurred. A market failure occurs when there are externalities; externalities are the costs of consumption borne by society as whole, instead of the individual consumer. The current system does not effectively account for externalities.<sup>45</sup> As noted earlier, the cost of obesity to the Canadian economy is billions of dollars a year. This links to the "polluter pays principle," which would ideally tax the activity that is causing

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Canadians to incur these costs at an optimal level of provision and at a level equal to the marginal external cost.<sup>46</sup> The problem with a tax on unhealthy foods is that the damage caused by certain foods depends on many elements, such as: how often it is eaten, whether it is part of a generally healthy diet and physical activity levels.<sup>47</sup> Although it is difficult for such a tax to perform at an optimal level, the cost incurred by the consumer will relate to the level of risk they are choosing to incur. How often an unhealthy choice is made will relate to how much tax is incurred.<sup>48</sup> A food tax may help individuals to not only incur the true cost of their actions, but also to realize the true costs of their choices.

Agricultural subsidies create a market distortion. The price of energy-dense foods is reduced by subsidization. Energy-dilute foods, such as vegetables and fruits, have far less support.<sup>49</sup> The price paid by consumers does not reflect the true cost of production, hence taxing highly subsidized foods could correct market distortions.<sup>50</sup> Although eliminating or reducing subsidies and supports



on milk, corn and soybeans would more directly address this problem, it may not be politically acceptable in Canada or effective if the United States and Europe do not do the same.<sup>51</sup> Subsidy reduction is a worthy long term goal but the use of a tax vehicle to better reflect the true price of energy dense foods is more attainable in the short term. The question is not whether the state should be involved in the market; it already is. The question is how to balance current state practice. Taxes on energy dense foods or a subsidy on vegetables and fruits may be justified based on current national and international agricultural supports.

### **Forms of Food and Beverage Taxes and Subsidy**

One possible price intervention would be to reevaluate the exemption for basic groceries under the GST/HST.<sup>52</sup> This reevaluation would ensure that the products exempted from tax are healthy. Energy dense foods, such as sugar, chocolate chips and pre-packaged sweetened goods of 6 or more remain untaxed, while a single serving of bottled water is taxed.<sup>53</sup> The benefit of this approach is that it does not require a new tax, but simply an alteration of an existing tax. If the change is regressive in nature, an increase in the refundable GST tax credit could be used to offset it.<sup>54</sup> The GST is currently paid on approximately one third of food expenditures and costs Canadians about \$2 billion dollars a year.<sup>55</sup> As Canadians are already paying this large amount of tax, it would be best to ensure the tax is in line with Canadians' nutritional needs.

Suggestions for new taxes take two forms, either based on nutrient content (calorie, fat, sugar etc.) or as a product based tax. The difficulty with determining the effectiveness of a tax is due to cross-price elasticity of demand. If individuals buy less of one product, they will buy more of another product; cross-price elasticity of demand measures this change. This results in the substitution effect. Individuals will consume more of other nutrients to substitute for what they are consuming less of. This substitution may lead to positive or negative health results depending on the substitution. A new tax is likely to have the effect intended, but also unintended consequences.<sup>56</sup>

A tax on calories may be useful as weight gain is generally attributed to consuming more calories than are burned.<sup>57</sup> The problem is that food may be high in

calories but still nutritious. For example, the avocado is high in fat and therefore calories, but provides nutrients and vitamins and is healthy in moderation.<sup>58</sup> It is also important how the tax would be applied. If it is based on calories per serving, the question is how would serving size be determined. The tax could also be based on energy density. Although, in general, a calorie tax may be a good idea, its inability to discriminate between the nutritional nature of the calories involved may limit its usefulness.

Another option would be to tax the fat content or saturated fat content of food.<sup>59</sup> Although a tax on fats or saturated fats would likely decrease intake of those nutrients, it could significantly increase intakes of sugar and salt because of substitution effects.<sup>60</sup> One examination

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of a saturated fat tax found that the increased intake of salt due to the tax could actually increase mortality.<sup>61</sup> Like other forms of price interventions, the effect of cross-price elasticity of demand on a fat tax needs to be carefully considered.

A more useful option may be to tax based on a scale that looks at numerous nutritional qualities.<sup>62</sup> The advantage of such a system is that it could limit the effect of cross-price elasticity of demand. Implementation of such a tax could be difficult. If there are many different levels of taxation it could be difficult for consumers to understand how the tax works and at what level certain products are taxed. This could limit its effectiveness. If such a scale includes evaluation of vitamins and minerals, companies may begin adding extra nutrients to their unhealthy products.<sup>63</sup> This may lead to foods appearing more nutritious than they are and to the population consuming too much of certain vitamins and minerals which can also be hazardous to its health.<sup>64</sup> A food and beverage tax based on numerous nutritional qualities



may be the best option for a tax because it would limit the problem of cross-price elasticity of demand.

A food and beverage tax could also be product based. It could be similar to the operation of the GST/HST. This could take the form of a junk food or soft drink tax. Categorizing foods and beverages is a problem with this approach. A good example of this is the difficulty involved in classifying a simple soft drink.<sup>65</sup> Some soft drinks have fruit juice in them. Soft drinks may be classified by their percentage of juice content. Juice can be extracted in a number of ways which could result in different levels of juice content while having the same percentage of juice.<sup>66</sup> In a similar manner, in the United Kingdom, Pringles chips were determined not to meet the definition of a potato snack.<sup>67</sup> They contain only 42% potato and thus are exempt from the tax.<sup>68</sup> When bright lines are created between what is taxed and what is not, slight improvements may be made to avoid tax and not really make food much healthier.<sup>69</sup> Or, as in the case of Pringles, such bright lines may lead to unexpected results with no benefit.

A product-based tax may have unintended consequences.<sup>70</sup> One simulation found that a 10 % tax on high-calorie, away from home food, would increase calorie consumption because individuals would consume more at home.<sup>71</sup> A 10 % tax on soft drinks was found to lead to weight gain.<sup>72</sup> A product tax may also induce individuals to buy cheaper versions of the foods they presently eat.<sup>73</sup> The healthiest foods within a product group are usually the most expensive.<sup>74</sup> If all foods in the group became more expensive, low income individuals may have even less ability to purchase better foods. Similar to taxing nutrients, using a product based tax would involve many complications which could limit its usefulness.

Food subsidies could be created for fruits and vegetables or fibre. A link has been established between the price of particular fruits and vegetables and how often they are purchased.<sup>75</sup> The effectiveness of such subsidies remains to be established. One simulation found that a 10% subsidy on low-calorie fruits and vegetables would result in slight weight gain; others have found they would save lives.<sup>76</sup> At this point, it is difficult to know what the result of such subsidies would be. Instead of creating a food subsidy that would apply to all fruits and vegetables, it may be better to use the money received from any new tax to subsidize or create access to food

in areas and to groups that are particularly at risk for obesity.

## Conclusion

Obesity is a growing and costly problem. Price interventions may be justifiable, in Canada, in order to protect vulnerable parties or to compensate for a market failure due to externalities and market distortions due to agricultural subsidies. More information is needed on how effective nutrient or product based taxes would be and particularly their effect on low income and food insecure Canadians. While further study is done in this area, it would be wise to reevaluate the definition of basic groceries to ensure the GST/HST supports choosing healthy products over unhealthy products. As part of a greater strategy, targeted food and beverage taxes and subsidies may be a useful tool in addressing the obesity problem.

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*JoAnne Sauder, Master's student, College of Law, University of Saskatchewan, Saskatoon.*

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## Endnotes

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- 65 *Ibid.* at 1294.
- 66 *Ibid.*
- 67 "UK Court: Pringles are potato-light, tax-free" *Associated Press* (4 July 2008) online: USA Today <[http://www.usatoday.com/news/world/2008-07-04-3301601906\\_x.htm](http://www.usatoday.com/news/world/2008-07-04-3301601906_x.htm)>.
- 68 The definition of potato snack is "potato crisps, potato sticks, potato puffs and similar products made from the potato, or from potato flour, or from potato starch": *ibid.*
- 69 SCOH, *Evidence*, No.19, *supra* note 4 at 1605 (Sean B. Cash).
- 70 Schroeter *et al.*, *supra* note 39.
- 71 *Ibid.*
- 72 *Ibid.*
- 73 SCOH, *Evidence*, No.19, *supra* note 4 at 1610 (J. Stephen Clark ).
- 74 *Ibid.*
- 75 Jamy D. Ard *et al.*, "The Impact of Costs on the Availability of Fruits and Vegetables in the Homes of Schoolchildren in Birmingham, Alabama" (2007) 97 *American Journal of Public Health* 367 at 369.
- 76 Schroeter *et al.*, *supra* note 39 at 62; Mytton *et al.*, *supra* note 39 at 689; Sean B. Cash, David L. Sunding & David Zilberman, "Fat Taxes and Thin Subsidies: Prices, Diet, and Health Outcomes" (2005) 2 *Acta Agriculturae Scand Section C* 167 at 169; Jensen & Smed, *supra* note 60.

