



Estimates of the effect of the Soft Drinks Industry Levy based on the sugar tax in Mexico

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Several countries tax sugar-sweetened beverages (SSBs) and one of the most recent to introduce such a tax is Mexico. In 2014, a one peso per litre on SSBs was introduced to reduce levels of obesity within the population.¹ Subsequent studies have indicated that the reduction in soft drink consumption has been small.^{iii, iv, v}

Average SSB consumption in Mexico is significantly higher than in the UK and the resultant fall in calorie consumption was described as “nothing compared to the drop in calories people needed to consume in order to not be obese”.² Moreover, the tax raised significantly more revenue than expected indicating that consumption had not fallen as expected.³

This note uses the reported effect on consumption of sugar-sweetened beverages in Mexico to estimate what the equivalent effect would be in the UK if the Soft Drinks Industry Levy is implemented.

Key Findings:

- If the tax on sugar-sweetened beverages had the same effect as it did in Mexico, average UK daily soft drink consumption would fall by between **5.4 millilitres** and **15.0 millilitres** per day.
 - This is equivalent to a decrease of between **2.1 and 5.8 calories** per day with a median of **4.6 calories**.

¹ Aguilar, Gutierrez & Seira, 2015, *Taxing calories in Mexico*, Center for Economic Research of the Autonomous Technological Institute of Mexico

² <https://next.ft.com/content/5593d870-97fe-11e5-9228-87e603d47bdc>

³ Aguilar, Gutierrez & Seira, 2015, *Taxing calories in Mexico*, Center for Economic Research of the Autonomous Technological Institute of Mexico

- This represents a decrease of between **0.08 per cent** and **0.23 per cent** of a man's recommended daily calorie intake - a median value of **0.18 per cent**.
- This represents a decrease of between **0.10 per cent** and **0.29 per cent** of a woman's recommended daily calorie intake - a median value of **0.23 per cent**.
- **4.6 calories** is equivalent to:
 - **33.1 per cent** of a Carr's Table Water Biscuit.
 - **6.5 per cent** of a typical apple.
 - **2.3 per cent** of a can of Heinz Tomato Soup.
 - **4.9 per cent** of a slice of Tesco Wholemeal bread.

Methodology

UK consumption change in millilitres is estimated by:

- Dividing Mexico's percentage change in consumption by the number of percentage points of tax.
 - This gives Mexican change in consumption per percentage point of tax.
- Multiplying this number by the number of percentage points in the UK tax rate.
 - This gives UK consumption change in percentage points.
- Applying UK consumption change to UK base soft drink consumption.
 - This gives an estimate of UK consumption reduction in millilitres.

The calorie change is calculated by applying the calories per millilitre in Coca-Cola to the change in millilitres consumed.

It is assumed that there is full pass through of the tax as per the Office for Budget Responsibility's analysis⁴.

The UK tax rate has been calculated on an 8x330ml multi-pack of Coca-Cola (costing £3.50) which would attract the higher (£0.24 per litre) rate of the Soft Drinks Industry Levy.

⁴ <http://cdn.budgetresponsibility.org.uk/March2016EFO.pdf#page=232>

Table guide:

Table 1: Estimates for the effect on calorie consumption based on the experience in Mexico.

Table 2: Illustrative comparisons of the median calorie reduction based on the effects of the Sugar Tax in Mexico.

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Table 1: Estimates for the effect on calorie consumption based on the experience in Mexico.

Mexico					
Tax rate ⁱ	Base soft drink consumption (ml/day per capita) ⁱⁱ	Change in consumption of SSBs (ml/day per capita)	New soft drink consumption (ml/day per capita)	Change in consumption (per cent of soft drinks consumption)	Change in consumption per percentage point (per cent)
12.3%	441	-15.0 ⁱⁱⁱ	426	-3.4%	-0.28%
12.3%	441	-12.0 ^{iv}	429	-2.7%	-0.22%
12.3%	441	-5.4 ^v	436	-1.2%	-0.10%
UK					
Tax rate ^{vi}	Base soft drink consumption (ml/day per capita) ^{vii}	Change in consumption of SSBs (ml/day per capita)	New soft drink consumption (ml/day per capita)	Change in consumption (per cent of soft drinks consumption)	Change in consumption per percentage point (per cent)
18.1%	275	-13.8	261	-5.0%	-0.28%
18.1%	275	-11.0	264	-4.0%	-0.22%
18.1%	275	-5.0	270	-1.8%	-0.10%
UK					
Calories per ml ^{viii}	Implied calorie change	Male recommended daily calorie intake (RDA) ^{ix}	Change in calorie intake based on RDA	Female recommended daily calorie intake (RDA) ^{ix}	Female Change in calorie intake based on RDA (per cent)
0.42	-5.8	2,500	-0.23%	2,000	0.29%
0.42	-4.6	2,500	-0.19%	2,000	0.23%
0.42	-2.1	2,500	-0.08%	2,000	0.10%

Table 2: Illustrative comparisons of the median calorie reduction based on the effects of the Sugar Tax in Mexico.

Food	Unit	Calories per unit	Median Calorie Reduction from UK sugar tax	Reduction as a percentage of unit calories	Source
Carr's water biscuit	1 Biscuit	14	4.6	33.1%	Tesco
Tesco Wholemeal bread	1 Slice	94	4.6	4.9%	Tesco
Ryvita	10g portion	35	4.6	13.3%	Tesco
Tesco Chipolata	1 Sausage	63	4.6	7.4%	Tesco
A typical apple	1 Apple	71	4.6	6.5%	Tesco
Heinz Tomato soup	1 Can	204	4.6	2.3%	Tesco
Pret Sausage and Egg Brioche	1 Serving	546	4.6	0.8%	Pret
Pret Porridge, Topping - Honey	1 Serving	107	4.6	4.3%	Pret

Sources

- ⁱ Cantú, Curiel & Valera, 2015, *The Non-Alcoholic Beverage Industry in Mexico*, Centro de Investigaciones Económicas, UANL
- ⁱⁱ TPA calculation based on <http://www.insp.mx/epppo/blog/4063-tax-sugar-sweetened-beverages.html>, accessed 07/06/16
- ⁱⁱⁱ Cantú, Curiel & Valera, 2015, *The Non-Alcoholic Beverage Industry in Mexico*, Centro de Investigaciones Económicas, UANL
- ^{iv} Colchero, Popkin, Rivera & Ng, 2016, *Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study*, BMJ
- ^v, Telleche, Garcia, Campa & Hernandez, 2015, *Effects produced on society's wellbeing by the policy to tax high-calorie food and beverage products. On spending and demand for soft drinks by household, 2012-2014.*, Center for Economic Studies, El Colegio de México
- ^{vi} TPA calculation
- ^{vii} British Soft Drinks Association, 2015, *Changing Tastes: The UK Soft Drinks Annual Report*
- ^{viii} TPA calculation based on the calorie content of Coca-Cola
- ^{ix} NHS Choices, <http://www.nhs.uk/chq/pages/1126.aspx?categoryid=51> accessed 03/06/2016