Session 7 - Bergen
11:00 – 12:30

Fiscal incentives for diet improvement / The sugar tax as example

Co-Chairs:
Prof. Franco Sassi
Imperial College London
Dr. Carlijn Kamphuis
University of Utrecht

#NCDPrevention22

*The four projects organising this event have received European funding as follows: **CO-CREATE** and **STOP** have received funding from the European Union's Horizon 2020 Research and Innovation Programme under the grant agreement No. 7744210 and No. 774548 respectively. **JA Best-ReMaP** has received funding from the European Union's Health Programme under the grant agreement No. 951202 and **PEN** has received funding from the Joint Programming Initiative "A Healthy Diet for a Healthy Life" (JPI HDHL).*

What is the value of nutritional taxes on SSB in tackling childhood obesity:

Olivier Allais[1], Céline Bonnet[2], Pauline Leveneur[3], Maxime Tranchard[1]
[1] PSAE, INRAE
[2] Toulouse School of Economics, INRAE
[3] CREST

15 June 2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774548. This presentation reflects only the author's view and the European Commission is not responsible for any use that may be made of the information it contains.

Motivation

Increasing number of fiscal polices in Europe

- France (2012, 2018): flat tax (then progressive) to reduce the purchase of sugar-sweetened beverages
- UK (2018): tax to reduce the purchase of sugar-sweetened beverages
- **… Portugal, Belgium, Finland, Hungary, Ireland, Norway.**

Questions

- How can fiscal policies affect purchase ?
- What design is the most effective in reducing sugar purchase ?

Interests and methods

Interests of this study

- Estimation of parents' price elasticities for products mostly consumed by children
- Account for the household composition (no children, only children, only adolescents, children and adolescents)
- Analysis of the non-alcoholic beverage market
- Cross-country analysis (France, UK, Spain)

Methods

Evaluate the effect of a tax on children diet taking into account

- Preferences and substitution patterns of consumers
- Firms' price reaction to the implementation of a tax
- Heterogeneity of the effect across households

Data
Market data and Consumer panel

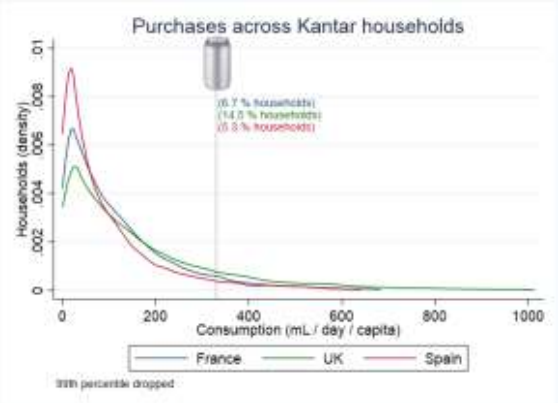
- **Data from Kantar WorldPanel soft drink market in 2017**
  - Demographic characteristics of households: members' age, obesity status, socio-economic class
  - Information on product characteristics: price, quantity, firms, brands, etc

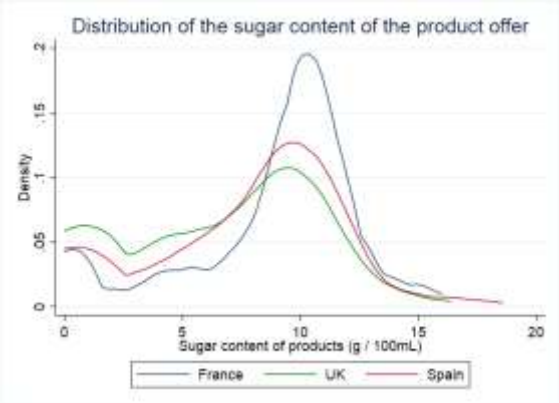
	France		UK		Spain	
	N	%	N	%	N	%
Household composition						
Without children	12,055	61	16,003	65	4,624	59
With children below 6 years old	1,881	10	2,960	12	1,092	14
With children 7-16 years old	3,838	19	3,668	15	1,586	20
With children both below 6 and 7-16 years old	1,905	10	1,865	8	585	7
Obesity status						
No overweight or obese adults	7,317	37	5,972	24	2,083	27
Some overweight or obese adults	6,674	34	8,184	33	3,423	43
All overweight or obese adults	5,688	29	10,430	43	2,381	30
Socio-economic class						
Rich	2,719	14	5,262	21	1,529	19
Average	14,136	72	13,912	57	4,772	61
Poor	2,824	14	5,412	22	1,586	20
All	**19,679**		**24,586**		**7,887**	

Non-alcoholic beverages	France	UK	Spain
Number of firms	60	78	50
Number of national brands	119	151	109
Number of sub-categories	8	11	10
Number of alternatives	319	402	285
Number of observations	666,482	1,319,069	270,211
Mean price (per litre)	1.18 €	0.78 €	0.84 €

5/10

Data
Market data and Consumer panel





6/10

Model and methods

Three-step methodology

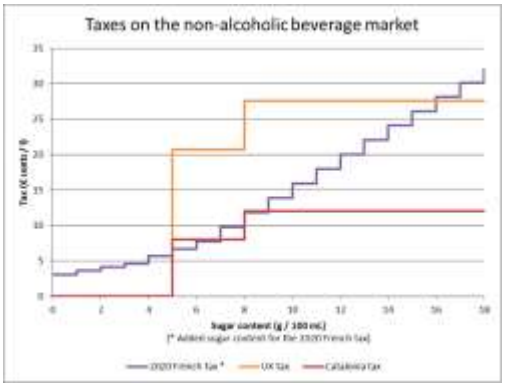
1. Demand (random coefficient logit model)
Estimation of household preferences for different product characteristics and price variations

2. Supply (oligopolistic competition between firms)
Pricing strategy, marginal costs of products Details

3. Counterfactual experiments
Simulation of taxation scenarios based on the sugar content of products
Effects of a tax on price, consumption and market shares

Simulation

Design of taxation scenarios



Existing policies

2020 French tax on soft drinks with added sugar
Design: progressive tax (15 thresholds based on the added sugar content)
2018 UK tax on soft drinks with added sugar
Design: progressive tax (2 thresholds based on the sugar content)
2017 Catalonia tax on soft drinks with added sugar
Design: progressive tax (2 thresholds based on the sugar content)

+ French based 4 threshold tax design

Simulation

Purchases variations resulting from all design taxes scenarios (in mL/week/household)

	French tax with 4 thresholds	French tax	UK tax	Catalonia tax
		France		
Liable drinks (sugar/100 mL)				
High tier $\geq$ 8g	-52.21	-47.17	-99.67	-53.45
Low tier] 5g ; 8g [	-0.29	3.43	-9.93	-0.23
] 0g ; 5g [	14.21	14.01	42.42	25.85
0g	28.50	24.65	42.17	23.87
Exempt drinks				
Pure fruit juices	7.85	4.12	20.08	3.24
		UK		
Liable drinks (sugar/100 mL)				
High tier $\geq$ 8g	-118.37	-110.89	-214.43	-111.71
Low tier] 5g ; 8g [	-50.73	-38.91	-154.14	-61.44
] 0g ; 5g [	14.32	21.35	174.46	83.88
0g	97.56	81.60	125.96	58.47
Exempt drinks				
Pure fruit juices	49.91	40.93	62.20	27.74
		Spain		
Liable drinks (sugar/100 mL)				
High tier $\geq$ 8g	-168.66	-153.53	-359.34	-163.55
Low tier] 5g ; 8g [	-36.24	-21.60	-139.87	-40.04
] 0g ; 5g [	84.24	75.52	278.13	113.43
0g	35.33	29.34	62.69	25.44
Exempt drinks				
Pure fruit juices	67.97	55.91	127.44	52.02

Non-alcoholic beverages, simulation:

- Higher impact of the UK tax
- Three others are closer

- Intra substitution

- Higher impact in Spain

Results

Sugar intake

Non-alcoholic beverages, France

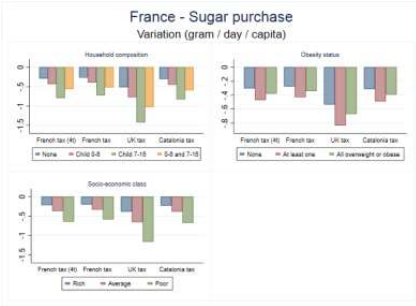
- Higher decrease for households with adolescents, from the poor class, **with some overweight or obese**

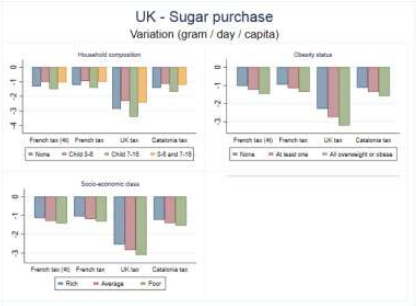
Non-alcoholic beverages, UK

- Higher decrease for households with adolescents, from the poor class, with all adults overweight or obese

Non-alcoholic beverages, Spain

- Higher decrease for **households with no children nor adolescents quickly followed by household with adolescent**, from the poor class, with some overweight or obese



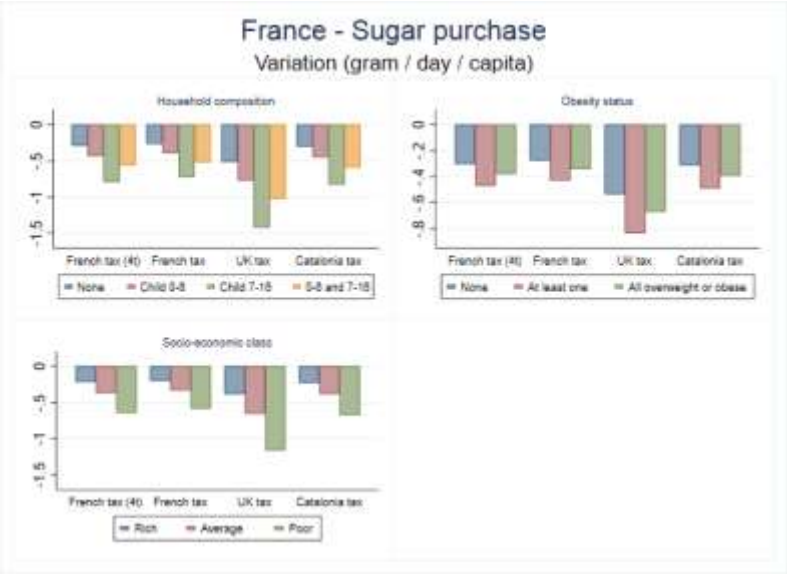


Conclusion

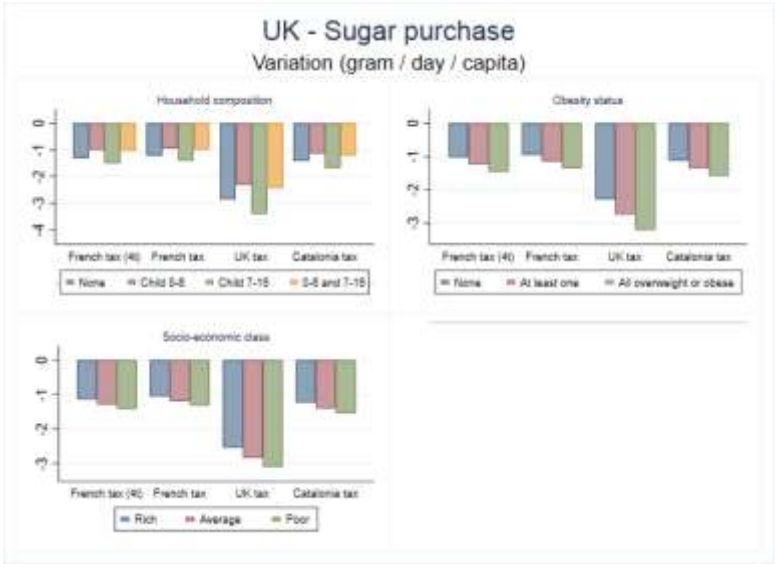
- Three-step methodology to study the effect of a tax on children diet
- Consumption profiles and price sensibility different according to households' demographic characteristics
- Nutritional fiscal taxes are effective to reduce sugar intake
  - Highest impact of the UK tax (less taxed products but higher tax level)
  - Heterogeneity of the impact regarding demographic characteristics
  - Heterogeneity of the impact regarding country

stop

Science and Technology in childhood Obesity Policy


France - Sugar purchase
Variation (gram / day / capita)
Household composition
Obesity status
Socio-economic class
French tax (40)
French tax
UK tax
Catalonia tax
None
Child 0-6
Child 7-15
0-6 and 7-15
At least one
All overweight or obese
Rich
Average
Poor

Back


UK - Sugar purchase
Variation (gram / day / capita)
Household composition
Obesity status
Socio-economic class
French tax (40)
French tax
UK tax
Catalonia tax
None
Child 0-6
Child 7-15
0-6 and 7-15
At least one
All overweight or obese
Rich
Average
Poor

Back

Back

Appendix

Results steps 1: Non-alcoholic beverages

Estimates of the random coefficient logit model (non-alcoholic beverages market)

	France	UK	Spain
Price (p_{jt})			
Mean (α)	-2.65 (0.00)	-6.84 (0.00)	-5.35 (0.00)
× children below 6 years old	0.05 (0.00)	0.13 (0.00)	0.15 (0.00)
× children 7-16 years old	0.03 (0.00)	-0.03 (0.00)	-0.22 (0.00)
× average class	-0.36 (0.00)	-0.24 (0.00)	-0.13 (0.00)
× poor class	-0.70 (0.00)	-0.35 (0.00)	-0.36 (0.00)
× at least one obese	-0.06 (0.00)	-0.12 (0.00)	-0.08 (0.00)
× all obese	-0.24 (0.00)	-0.15 (0.00)	0.00 (0.00)
Standard deviation (σ)	0.91 (0.00)	1.64 (0.00)	0.61 (0.00)
Pure juice	0.66 (0.00)		3.35 (0.00)
Fruit drink			0.64 (0.00)
Fruit juice with milk			1.48 (0.00)
Diet	-1.59 (0.00)	1.02 (0.00)	-0.31 (0.00)
× children below 6 years old	0.09 (0.00)	0.13 (0.00)	0.30 (0.00)
× children 7-16 years old	0.06 (0.00)	0.07 (0.00)	0.21 (0.00)
Sugar (SSBs)	-0.05 (0.00)	0.16 (0.00)	0.11 (0.00)
× children below 6 years old	0.05 (0.00)	0.03 (0.00)	0.02 (0.00)
× children 7-16 years old	0.04 (0.00)	0.02 (0.00)	0.02 (0.00)
Sugar (fruit juices)	-0.06 (0.00)	0.03 (0.00)	0.14 (0.00)
× children below 6 years old	0.04 (0.00)	0.05 (0.00)	0.09 (0.00)
× children 7-16 years old	0.04 (0.00)	0.04 (0.00)	0.07 (0.00)
Fixed effects			
Sub-category	no	yes	no
Brand (NBs & PLs)	yes	yes	yes
Error (γ_{jt})	0.51 (0.00)	0.09 (0.00)	0.49 (0.00)
Observations	708,940	1,364,000	270,000
Log-likelihood	-1.53589e+10	-2.33081e+10	-9.05638e+09

Note: standard errors of coefficient estimates are in parentheses.

Own-price elasticity

	Non-alcoholic beverages		
	France	UK	Spain
Household composition			
Without children	-4.71	-8.93	-7.39
With children below 6 years old	-4.61	-8.84	-7.31
With children 7-16 years old	-4.67	-8.93	-7.39
With children below 6 and 7-16 years old	-4.59	-8.92	-7.51
Obesity status			
No overweight or obese	-4.48	-8.84	-7.42
At least one overweight or obese	-4.58	-8.95	-7.52
All overweight or obese	-4.89	-8.98	-7.42
Socio-economic class			
Rich	-4.06	-8.73	-7.24
Average	-4.60	-8.96	-7.40
Poor	-5.24	-9.08	-7.71

Back

Appendix

Results steps 2: Non-alcoholic beverages

Elasticities and margins by firms (Non-alcoholic beverages market)

Firms	France		UK		Spain	
	Own-price elasticities	Margins (% price)	Own-price elasticities	Margins (% price)	Own-price elasticities	Margins (% price)
National brands						
Firm 1	-3.2	40.0	-6.5	19.2	-5.3	24.6
Firm 2	-3.7	29.6	-6.6	17.6	-4.9	23.1
Firm 3	-3.9	29.9	-8.2	12.6	-4.0	27.1
Firm 4	-4.6	22.9	-4.2	27.2	-6.4	20.8
Firm 5	-4.2	25.0	-5.6	19.5	-7.8	13.1
Firm 6	-2.9	36.0	-3.5	28.4	-5.4	20.1
Firm 7	-3.8	27.6	-4.8	21.4	-15.8	6.4
Firm 8	-6.2	16.3	-12.5	8.7	-9.8	10.3
Firm 9	-5.2	19.2	-10.8	9.8	-3.0	41.8
Firm 10	-4.7	21.6	-6.4	16.5	-11.3	8.9
Small firms	-4.0	27.7	-7.9	18.9	-10.5	16.4
Very small firms	-3.7	32.0	-7.5	15.3	-5.9	26.6
Private labels	-3.1	56.9	-4.4	52.3	-4.0	54.0

Firm 1 to Firm 10 are the ten firms with the highest market shares.
Thus Firm 1 in France is not necessarily the same than Firm 1 in Spain.

Back

stop

Science and Technology in childhood Obesity Policy

Simulation of a sugar tax in the sugar-sweetened beverages market in Italy.

Tiboldo G., Castellari E., and Moro D.
Università Cattolica del Sacro Cuore, Piacenza, Italy

Policy Symposium on NCD Prevention: Future directions for nutrition and physical activity policies to prevent NCDs across Europe

Funded by the Joint Programming Initiative "A Healthy Diet for a Healthy Life" (JPI HDHL) with contributions from national funding agencies of participating countries

Bruxelles, June 2022

www.jpi-pen.eu
Policy Evaluation Network (PEN)
@PEN_EU1

Introduction 1/3

- The number of obese and over-weight people has been increasing significantly in Europe in recent years (above 50%) (WHO, 2019; Eurostat, 2020).
- Even though Italy's obesity and over-weight rates are low relative to most OECD countries (46%), childhood obesity rate is considered one of the highest (1 in 3 children) (OECD, 2020).
- Obesity and poor nutrition increase the incidence of non-communicable diseases (Eurostat, 2020).
- The consumption of sugar and sugar-sweetened beverages (SSBs) is one of the most important contributors to the spread of obesity and over-weight, particularly among young people (Keller and Bucher Della Torre 2015).

Introduction 2/3

SSBs taxes in the EU region.

Country (year)	Tax design	Tax rate
Belgium (2015)	Excise tax (volumetric), flat rate	6.81 €/hl
Finland (2011)	Excise tax (sugar content), flat rate	75 cents/kg
France (2012)	Levy (volumetric), flat rate	7.16 €/hl
Hungary (2011)	Excise tax (volumetric), flat rate	5 forint/L for > 8 g sugar/100ml
Ireland (2018)	Excise tax (sugar content), tiered rate	16.26 €/hl for 5-8 g sugar/100 ml 24.39€/hl for > 8 g sugar/100 ml
Latvia (2020)	Sugar content, tiered rate	7.4 €/hl for < 8 g sugar/100 ml 14 €/hl for > 8 g sugar/100 ml
Norway (2009)	Excise tax (volumetric), flat rate	2.71 kroner/l
Portugal (2017)	Excise tax (sugar content), tiered rate	8.22 €/hl for < 80 g sugar/l 16.46 €/hl for > 80 g sugar/l
United Kingdom (2018)	Levy (sugar content), tiered rate	18 p for 5-8 g sugar/100 ml 24 p for > 8 g sugar/100 ml

(WHO, 2022)

Introduction 3/3

The Italian sugar tax

- Originally introduced by the 2020 budget law (legge n.160/2019).
- It will come into force on January 1, 2023.
- Taxable payers are national manufacturers.
- Flat tax rate: 10 cents per liter for finished SSBs having sweetener content higher than 25 grams per liter.

Objectives

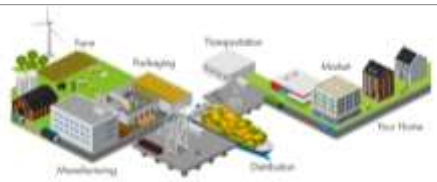
- To evaluate the potential impact of the Italian sugar tax on SSBs and sugar consumption in Italy.
- To derive some distributional implications.
- To compare the effectiveness and the impact on social welfare of the Italian sugar tax with those of other tax schemes affecting SSBs purchases[1]:
  1. Excise tax on SSBs' sugar content (0.10 euro per 100 grams of sugar).
  2. Two-tier tax on SSBs:
     - 0.057 euro[1]/l for 50-80 g sugar/l;
     - 0.106 euro[1]/l for >80 g sugar/l.

This is the first study to evaluate the effects of the Italian sugar tax and to compare the resulting impacts with those from similar tax schemes on SSBs.

[1]Tax rates are derived under the assumption of revenue-neutrality (Bonnet and Requillart, 2013).

Empirical framework in short

A supply-chain approach



- Step 1: estimating consumers' demand for SSBs using the random coefficient logit demand (BLP) model and deriving price-elasticity (Berry, Levinshon and Pakes, 1995).
- Step 2: on the supply side, the estimated demand parameters are used to recover marginal costs.
- Step 3: the estimated marginal costs and demand parameters are used to carry out counterfactual simulations.

The model: the demand side

- The demand for SSBs is modeled according to the random coefficient logit demand (BLP) model (Berry, Levinshon and Pakes, 1995; Nevo 2000,2001).
- The indirect utility that each household i can get from product j is:

$$U_{ij} = a_i p_j + \beta x_j + \xi_j + \varepsilon_{ij}$$

- The random parameter a_i accounts for the potential heterogeneity of individual preferences for price:

$$a_i = a + \sigma v_i + \pi D_i \qquad v_i \sim P_v(v),\ D_i \sim \widehat{P_D^*}$$

- Price elasticities recovered from estimated parameters.

The model: the supply side

- Following BLP(1995) and Nevo (2001), under a pure-strategy Nash-Bertrand equilibrium, profit of each multiproduct firm f that produces a subset J_f of the J products in the market is defined as:

$$\Pi_f = \Sigma_{j \in Jf} (p_j - mc_j)\, Ms_j(p, X, \xi; \theta) - C_f$$

- profit maximization allows us to recover marginal costs and price cost margins:

$$(\mathbf{p}-\mathbf{mc}) = (\boldsymbol{\Omega}(p)\, \boldsymbol{\Lambda})^{-1}\, \mathbf{s}(\bullet)$$

$$\mathbf{mc} = \mathbf{p} - (\boldsymbol{\Omega}(p)\, \boldsymbol{\Lambda})^{-1}\, \mathbf{s}(\bullet)$$

Simulating the sugar tax

- Modelling the impact of a tax, *t*, on SSBs prices is equivalent to modelling an increase in marginal costs (Bonnet and Requillart, 2013).
- In the case of the Italian sugar tax, the new value of SSBs marginal costs (mc') can be derived as:

$$mc' = mc + \phi\, t$$

Where ϕ is equal to 1 if the product is subject to the tax (i.e., > 25 grams of sugar/l), 0 otherwise, t=0.10 euro/l.

- The new equilibrium prices for SSBs can be derived as follows:

$$\min_{\{p_j^*\}_{j=1,\dots,J}} \left\| p_j^* - \Lambda(p_j^*) - mc_j' \right\|$$

The cost pass-through rate (% of mc on final prices) and the new market shares are then retrieved

Data and estimation

- Nielsen Household Panel data on SSBs purchases for over 9,000 Italian households (Jan 2019-Dec 2020).
- Products are defined based on:
  - vendor name;
  - segment (ice-tea, cola, other carbonated SSBs, fruit drinks);
  - sugar content (regular vs diet).
- Regional and seasonal fixed-effects and a COVID-19 control variable are included
- Generalized Method of Moments (GMM) estimator and instrumental variables (i.e., cost-shifters).

Summary statistics

Product	Vendor	Segment	Diet	Share (%)	Price (€/L)
1	Vendor 1	Ice tea	0	0.59%	1.18
2	Vendor 10	Ice tea	0	0.35%	0.94
3	Vendor 2	Ice tea	0	3.13%	1.86
4	Vendor 4	Ice tea	0	1.00%	0.93
5	Private labels	Ice tea	0	0.96%	0.75
6	Vendor 2	Ice tea	1	0.45%	1.85
7	Vendor 1	Cola	0	7.49%	1.26
8	Vendor 3	Cola	0	2.06%	0.81
9	Private labels	Cola	0	0.43%	0.45
10	Vendor 1	Cola	1	3.31%	1.26
11	Vendor 3	Cola	1	0.43%	0.81
12	Vendor 1	Other	0	1.31%	1.05
13	Vendor 1	Other	0	0.40%	1.10
14	Vendor 4	Other	0	0.68%	0.57
15	Vendor 4	Other	0	1.12%	1.28
16	Vendor 5	Other	0	0.37%	1.11
17	Vendor 5	Other	0	0.80%	1.12
18	Private labels	Other	0	1.09%	0.53
19	Vendor 4	Other	1	0.47%	0.83
20	Vendor 9	Fruit drinks	0	1.16%	1.64
21	Vendor 8	Fruit drinks	0	0.62%	1.41
22	Vendor 7	Fruit drinks	0	0.75%	1.03
23	Private labels	Fruit drinks	0	2.33%	1.09
24	Vendor 6	Fruit drinks	0	0.73%	1.37
25	Vendor 6	Fruit drinks	1	0.83%	1.62

- Our sample consists of 25 products which account for almost one third (32.8%) of total beverages purchases (water excluded), and 60% of SSBs purchases.
- Vendor 1 is the market leader (13.1% of the market).
- Vendor 2 is the leader for the ice-tea segment.
- Diet products account for 16% of the sample.

Demand model estimation results

Variable	Parameter estimates
Price	-4.443***
Price st.dev	0.352***
Price#Affluency	0.964***
Ice tea	0.130***
Cola	1.357***
Fruit drink	2.671***
Diet	-0.646***
COVID-19	-0.113**
Summer	0.005
Fall	-0.086***
Winter	-0.164***
Constant	-4.007***

Notes: *, **, and *** represent 10, 5 and 1 percent levels of statistical significance, respectively. Vendor and regional fixed effects coefficients omitted for brevity.

- The price parameter differs significantly across households with different income levels.

model results

Vendor	Elasticity	Price'	PCM'	%PCM	MC'
All	-2.33	1.11	0.52	49	0.60
Minimum	-1.27	0.45	0.38	36	0.08
Maximum	-2.88	1.86	0.89	83	1.06
NBs	-2.44	1.19	0.54	46	0.66
PLs	-1.78	0.71	0.41	63	0.30
Regular	-2.29	1.07	0.50	49	0.57
Diet	-2.49	1.28	0.58	47	0.69

Notes: 'euro/L

Source: Authors' calculation using Nielsen Household Panel data (2019-2020).

Product	PL	Diet	Sugar	Price	*Italian sugar tax*		*Tax on sugar content*		*Two-tier tax*	
					Tax rate	Δ% price	Tax rate	Δ% price	Tax rate	Δ% price
1	0	0	78.2	1.18	0.1	9.6%	0.08	7.5%	0.06	5.1%
2	0	0	91.3	0.94	0.1	11.9%	0.09	11.1%	0.11	12.7%
3	0	0	100.9	1.86	0.1	6.9%	0.10	7.3%	0.11	7.4%
4	0	0	68.1	0.93	0.1	12.0%	0.07	8.2%	0.06	6.6%
5	1	0	85.9	0.75	0.1	14.4%	0.09	12.6%	0.11	15.4%
6	0	1	3.4	1.85	-	-2.6%	0.00	-2.2%	-	-2.7%
7	0	0	106.5	1.26	0.1	9.1%	0.11	10.0%	0.11	9.8%
8	0	0	85.8	0.81	0.1	13.6%	0.09	12.0%	0.11	14.5%
9	1	0	104.6	0.45	0.1	23.2%	0.11	25.0%	0.11	24.7%
10	0	1	0	1.26	-	-0.9%	-	-0.9%	-	-0.8%
11	0	1	0	0.81	-	-0.4%	-	-0.4%	-	-0.4%
12	0	0	115.7	1.05	0.1	10.6%	0.12	12.8%	0.11	11.4%
13	0	0	19.3	1.1	-	-0.9%	0.02	1.3%	-	-0.8%
14	0	0	54.1	0.57	0.1	18.9%	0.06	10.4%	0.06	10.7%
15	0	0	102.2	1.28	0.1	9.0%	0.10	9.5%	0.11	9.6%
16	0	0	100	1.11	0.1	10.3%	0.10	10.5%	0.11	10.9%
17	0	0	110.7	1.12	0.1	10.2%	0.11	11.6%	0.11	10.8%
18	1	0	99.6	0.53	0.1	19.8%	0.10	20.3%	0.11	21.0%
19	0	1	4.2	0.83	-	-0.6%	0.00	0.1%	-	-0.4%
20	0	0	123.9	1.64	0.1	7.3%	0.13	9.5%	0.11	7.7%
21	0	0	109.8	1.41	0.1	8.4%	0.11	9.4%	0.11	8.9%
22	0	0	94.7	1.03	0.1	11.0%	0.10	10.6%	0.11	11.6%
23	1	0	105.4	1.09	0.1	10.2%	0.11	11.0%	0.11	10.8%
24	0	0	112.2	1.37	0.1	8.9%	0.12	10.0%	0.11	9.2%
25	0	1	53.1	1.62	-	-0.8%	0.05	3.5%	0.06	3.8%

Impact of taxes on SSBs prices

The pass-through rate is higher than 1 for all taxed products

SSBs' producers over-shift the change in marginal cost to consumers prices.

Market shares by scenario

- In the Italian sugar tax scenario, the market share for all regular SSBs decreases substantially (-7.5% to -12.1%).
- Regular SSBs with a sugar content below 100 g/l would benefit from an excise tax on sugar content as they would experience a lower fall in market share (from -0.1% to -7.6%).
- A two-tier tax would be preferable for all SSBs with a sugar content below 80 g/L (+2.2% to +4.2%).
- Market share of diet products increase substantially in all simulated scenarios (on average +20%).

Changes in SSBs and sugar consumption

	Baseline		*Italian sugar tax*		*Tax on sugar*		*Two-tier tax*	
Income group	SSBs[1]	sugar[2]	Δ% SSBs	Δ% sugar	Δ% SSBs	Δ% sugar	Δ% SSBs	Δ% sugar
All	11.3	940.7	-11.7%	-16.7%	-10.1%	-15.9%	-10.8%	-16.1%
Low	11.3	970.0	-16.2%	-22.1%	-13.5%	-20.4%	-14.8%	-21.2%
Low-middle	11.7	981.9	-12.9%	-18.6%	-11.0%	-17.6%	-11.8%	-17.9%
Upper-middle	12.6	1029.9	-10.3%	-15.2%	-9.3%	-14.8%	-9.6%	-14.8%
High	12.2	953.2	-8.4%	-12.0%	-8.0%	-12.0%	-8.2%	-12.0%

Notes: [1]L per capita/year; [2]grams per capita/year

- The consumption of SSBs and sugar decrease across all income groups, with this impact being in the highest in the Italian sugar tax scenario.
- The percentage fall in sugar is higher than that of SSBs ⇒ substitution with diet products.
- Lower income households experience the largest fall in SSBs and sugar consumption.

Distributional and welfare impacts

- All the simulated SSBs tax scheme generate a social welfare loss of about 50 millions of euro per year, which is mainly driven by the striking fall in consumer surplus (above 65 millions per year).
- On average, producers surplus decreases by 9%.

income group	%CS loss/% population
low	1.12
lower-middle	1.14
upper-middle	0.96
high	0.68

- The tax burden is higher on low income groups than on more affluent consumers.

Conclusions

- The results from this analysis show that the Italian sugar tax can significantly lower SSBs and sugar consumption (-11.7% and -16.7% respectively).
- Moreover, it is more effective in reducing SSBs consumption compared to similar tax schemes on SSBs adopted in other European countries.
- The percentage fall in SSBs and sugar consumption is higher for lower socio-economic groups than that for relatively more affluent households.
- However, they are also the most burdened by the tax.
- Therefore, despite being regressive, the Italian sugar tax may be progressive from a health perspective? (internalities' issue?)
- … however, what about cross-product effects (sugar from other products?)

Stakeholder views on an SSB tax in the Netherlands: perceived barriers and facilitators of SSB tax adoption and perceived effects for lower and higher socioeconomic groups

A qualitative study of stakeholder views in the Netherlands.

Eykelenboom M1, **Djojosoeparto SK2,** van Stralen MM1, Olthof MR1, Renders CM1 , Poelman MP3, Kamphuis CBM4, Steenhuis IHM1, on behalf of the PEN Consortium

1. Department of Health Sciences, Faculty of Science, Vrije Universiteit Amsterdam, and Amsterdam Public Health Research Institute, Amsterdam, the Netherlands.
2 Department of Human Geography and Spatial Planning, Faculty of Geosciences, Utrecht University, Utrecht, the Netherlands.
3 Chair group Consumption and Healthy Lifestyles, Department of Social Sciences, Wageningen University & Research, Wageningen, the Netherlands.
4 Department of Interdisciplinary Social Science, Faculty of Social and Behavioural Sciences, Utrecht University, Utrecht, the Netherlands.

June 2022

Background

- An increasing number of governments worldwide have introduced a tax on sugar-sweetened beverages (SSB) for public health.
- An SSB tax may also contribute to a reduction of socioeconomic inequalities in dietary intake and health.
- However, the adoption of such a policy is still debated in many other countries, such as in the Netherlands.
- The Netherlands applies a value-added tax (VAT) rate of 9% to all food and beverages.
- Additionally, a consumption tax of 8.83 eurocent per litre is applied to non-alcoholic drinks (i.e. fruit and vegetable juices, soft drinks and mineral water), with no distinction made between SSBs and sugar-free beverages.

Background

- Little is known about views of various stakeholder groups in the Netherlands on taxation of SSBs, barriers and facilitators to its adoption, and the potentially differential effects of an SSB tax.
- An investigation of stakeholder views may provide useful insights into potential challenges and opportunities when governments would consider the introduction of an SSB tax and equity-related considerations in the debate.

Aims

- Aims: to gain insight into the perceptions of stakeholder groups in the Netherlands on:
  - Taxation of SSBs
  - Barriers and facilitators that may influence its adoption in the Netherlands.
  - The effects of an SSB tax on the budgets of lower and higher socioeconomic groups and
  - The impact of an SSB tax on socioeconomic inequalities in dietary intake and health.

Methods

- Qualitative semi-structured interview study between March and May 2019 in the Netherlands

- 27 participants from various stakeholder groups:
  - health and consumer organizations (3)
  - health professional associations (3)
  - trade associations (4)
  - academia (9)
  - advisory bodies (2)
  - ministries (3) and
  - parliamentary parties (3)

Methods

"definition of an SSB tax: a tax of at least 20% on regular soft drinks, fruit juices with added sugars, sport drinks, energy drinks and flavoured water with added sugars."

- Questions about:
  - barriers and facilitators to introducing an SSB tax in the Netherlands
  - advantages and disadvantages of an SSB tax
  - including questions about potential differential effects of an SSB tax on different socioeconomic groups.
- Interview transcripts were analyzed using a thematic content approach.

Results

- Contradictory views exist on the effectiveness and appropriateness of an SSB tax. Overall, most concerns and doubts about an SSB tax were expressed by stakeholders from trade associations.
- **Perceived barriers to the adoption of an SSB tax:** unfavourable political context, limited advocacy for an SSB tax, strong lobby against an SSB tax, perceived public opposition, administrative load and difficulties in defining SSB.
- **Perceived facilitators to its adoption:** an increasing prevalence of overweight, disappointing results from voluntary industry actions, a change of government, state budget deficits, a shift in public opinion, framing messages related to the objective of the tax, the use of an SSB tax as a potential solution to other societal problems, international recommendations and a solid legal basis.

Results

An SSB tax….

- …is likely to have a **larger impact on the budgets of lower socioeconomic groups**
  - Participants from all stakeholder groups
- ….is likely to result in **greater health benefits among lower socioeconomic groups**
  - Participants from all stakeholder groups (except trade associations)
- ….**may have no or adverse health effects among lower socioeconomic groups** (e.g. compensation of lower SSB consumption with other unhealthy behaviour)
  - Some participants (from academia, a health and consumer organization, and a health professional association)
- ….should only be introduced when **accompanied by other interventions** (e.g. decreasing the prices of healthy foods)
  - Some participants (from academia, a health and consumer organization)





Public acceptability of an SSB Tax

- Stakeholders in our study thought that the majority of the Dutch public would oppose an SSB tax.
  - Public acceptability of an SSB tax in the Netherlands was investigated in an online survey among adults representative of the Dutch population for age, sex, educational level and location (Eykelenboom et al., 2020).
  - Of the participants, 40% supported (43% opposed) an SSB tax in general and 55% supported (32% opposed) an SSB tax if revenue is used for health initiatives.


REVIEW Open Access

Political and public acceptability of a sugar-sweetened beverages tax: a mixed-method systematic review and meta-analysis

Abstract

Conclusions

- Several challenges remain to be overcome for the adoption of an SSB tax in the Netherlands.
- For an SSB tax to be successful, it is important to address commonly raised concerns. For example, the concern that an SSB tax could result in an excessive focus on SSB as the only cause of overweight and obesity, could be addressed by introducing an SSB tax as a component of an **integrated package of health interventions**.
- Participants believed an SSB tax could contribute to a reduction in socioeconomic inequalities in dietary intake and health. However, **additional interventions facilitating the reduction of SSB consumption** in lower socioeconomic groups were recommended.

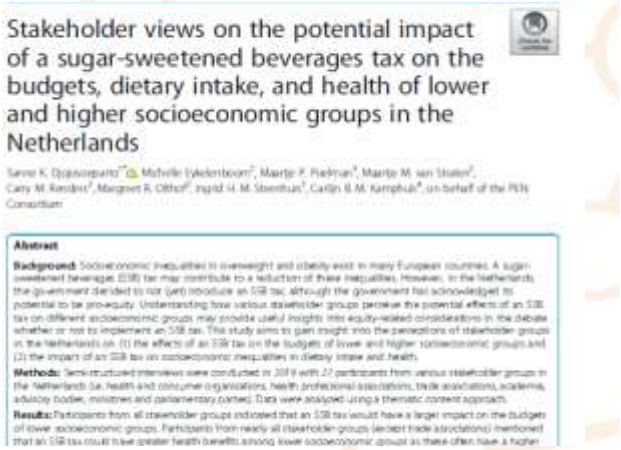
AND

Papers

Stakeholder views on taxation of sugar-sweetened beverages and its adoption in the Netherlands

Michelle Eykelenboom, Sanne K. Djojosoeparto, Maartje M. van Stralen, Margreet R. Olthof, Carry M. Renders, Maartje P. Poelman, Caelijn B. M. Kamphuis, and Ingrid H. M. Steenhuis, on behalf of the PEN Consortium

Eykelenboom et al.
Health Promotion International (2021)
doi: 10.1093/heapro/daab114



Stakeholder views on the potential impact of a sugar-sweetened beverages tax on the budgets, dietary intake, and health of lower and higher socioeconomic groups in the Netherlands

Djojosoeparto et al.
Archives of Public Health (2020)
https://doi.org/10.1186/s13690-020-00507-x

Developments in the NLs after this study

- In the coalition agreement (2021-2025) it is included that the new government is planning to increase the consumption tax of 8.83 eurocent per litre, applied to non-alcoholic beverages.
- Also, the new government is planning to exclude mineral water from the tax.

- We advise the government to implement an SSB Tax of preferably 20% and to design an SSB Tax as in the UK with rates that depend on the sugar content.

Thank you for your attention!

Sanne Djojosoeparto (s.k.djojosoeparto@uu.nl)

Manufacturers' Reformulation Decisions Following the UK Soft Drinks Industry Levy

Yuexian Tang, Franco Sassi, Mathilde Gressier
Centre of Health Economics & Policy Innovation, Imperial College Business School

Brussels

15/06/2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774548.
This presentation reflects only the author's view and the European Commission is not responsible for any use that may be made of the information it contains.

Background

The UK Soft Drinks Industry Levy (SDIL): announced in March 2016, implemented in April 2018.

Two-tiered tax levied on manufacturers. The stated aim was to encourage manufacturers to reformulate or renew beverage portfolio, or reduce drinks sizes.

Forde et al. (2019) found that companies with characteristics such as:

- low brand strength,
- large size of product portfolio,
- active strategies to develop or acquire new products

Are more likely to reformulate to lower-sugar alternatives.

Objectives and Approach

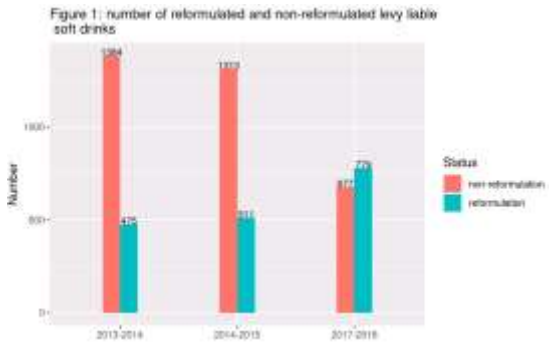
To identify drivers of manufacturers' decisions on the reformulation of levy liable soft drinks after the announcement and before the implementation of the UK SDIL.

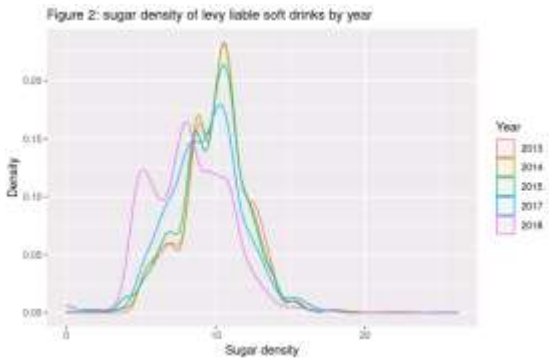
Approach:

1. Identify drivers of manufacturers' reformulation decisions between 2015 and 2018
2. Compare drivers before and after the announcement of the SDIL (2013-2014)

Reformulation Decisions

Definition of reformulation: a beverage is reformulated if the sugar density decreases





Possible drivers, hypothesis and calculation

a. Beverage-level drivers:
   - Sugar density
   - Beverage price
   - Beverage importance

b. Household-level drivers
   - Households' sugar preference
   - Households' loyalty
   - Households' social class

c. Manufacturer-level drivers
   - Manufacturer power
   - Scale of other sugar reduction strategies

d. sector-level drivers
   - Sector competitiveness

Drivers of Reformulation Post-SDIL

Reformulation **more** likely when:

- Sugar density in lower tax band or close to higher threshold
- Low-priced beverages
- High brand loyalty
- Low manufacturer power
- Low level of competition in market segment

Drivers of Reformulation Have Changed

Reformulation **more** likely when:

- Sugar density in lower tax band or close to higher threshold
- Low-priced beverages [weaker impact before tax]
- High brand loyalty [weaker impact before tax]
- Low manufacturer power
- Low level of competition in market segment
- Consumers' sugar preference

Discussion

Important insights from this analysis may lead to:

- Better understanding of how market characteristics will determine manufacturers' response to tax incentives
- Better targeting of tax incentives or reformulation

Taxes as an incentive for product reformulation

O. Allais,[α] G. Enderli,[α] F. Sassi,[β] LG. Soler [α]

[α] INRAE

[B] Imperial College London

Policy symposium on NCD prevention (Parallel session 7)
Brussels
15 June 2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774548.
This presentation reflects only the author's view and the European Commission is not responsible for any use that may be made of the information it contains.

57

The slides corresponding to this talk are not available

58

Science and Technology in childhood Obesity Policy

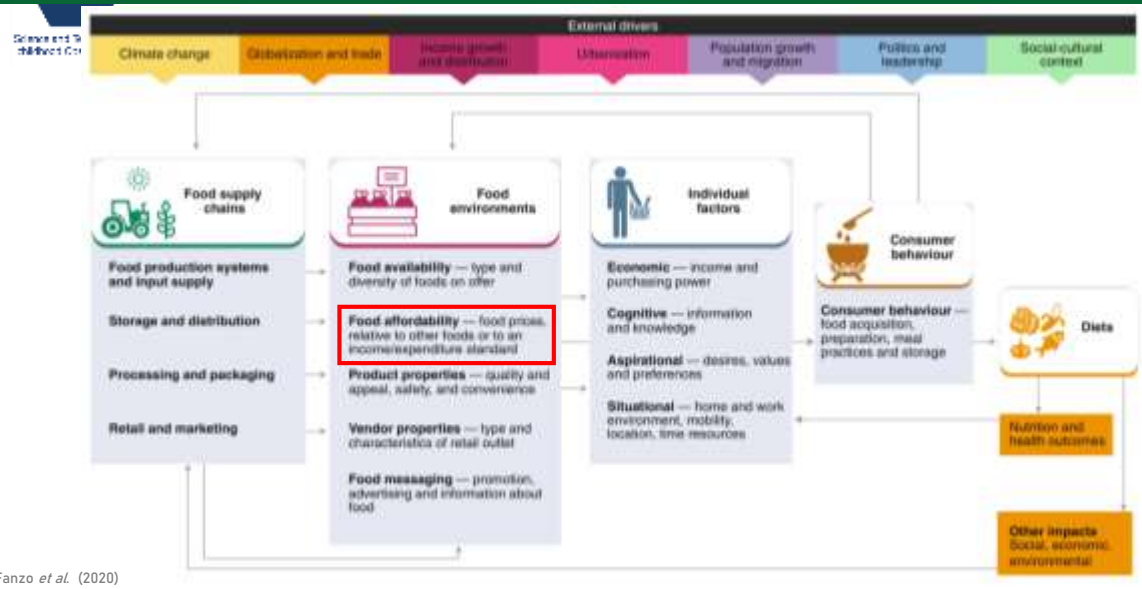
PEN Policy Evaluation Network

Fiscal policies for diet improvement - SSB-taxes and beyond: effects of food taxation

Carlijn Kamphuis (c.b.m.kamphuis@uu.nl), presenting on behalf of the co-authors: Michelle Eykelenboom, Margreet R. Olthof, Maartje M. van Stralen, Sanne K. Djojosoeparto, Maartje P. Poelman, Carlijn B. M. Kamphuis, Reina E. Vellinga, Wilma E. Waterlander, Carry M. Renders, Ingrid H. M. Steenhuis, on behalf of the **PEN Consortium**

Maxime Tranchard (maxime.tranchard@tse-fr.eu) , presenting on behalf of the co-authors: Olivier Allais, Celine Bonnet, Pauline Leveneur, on behalf of the Science and Technologie in childhood Obseity Policy « **STOP** » project

The food system



Fanzo *et al.* (2020)

Food affordability

- Price is an important determinant of food choice
- It seems that the healthy choice is not the cheaper choice
- Can we influence food choice behavior by pricing strategies such as taxes?

Pathways of effects

World Cancer Research Fund International (2018)

WHO recommendation

World Health Organization

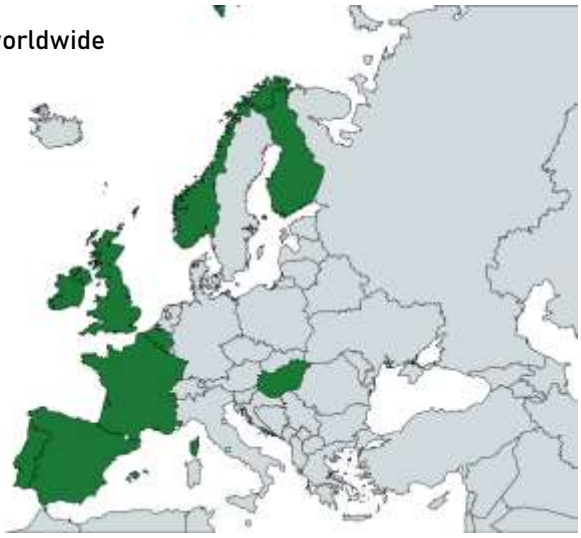
RECOMMENDATIONS	RATIONALE
1.2 Implement an effective tax on sugar-sweetened beverages.	*The adoption of fiscal measures for obesity prevention has received a great deal of attention [23] and is being implemented in a number of countries.[1] Overall, the rationale for taxation measures to influence purchasing behaviours is strong and supported by the available evidence [24, 25]. Further evidence will become available as countries that implement taxes on unhealthy foods and/or sugar-sweetened beverages monitor their progress.[2] The Commission believes there is sufficient rationale to warrant the introduction of an effective tax on sugar-sweetened beverages.*

World Health Organisation (2016)

Minimum tax rate of 20%

SSB taxes in Europe

Over forty countries worldwide



The effects of an SSB tax and a nutrient profiling tax

Public Health Nutrition: 25(4), 1105–1117 doi:10.1017/S1368980021004547

The effects of a sugar-sweetened beverage tax and a nutrient profiling tax based on Nutri-Score on consumer food purchases in a virtual supermarket: a randomised controlled trial

Michelle Eykelenboom[1,*], Margreet R Olthof[1], Maartje M van Stralen[1], Sanne K Djojosoeparto[2], Maartje P Poelman[3], Carlijn BM Kamphuis[4], Reina E Vellinga[5], Wilma E Waterlander[6], Carry M Renders[1] and Ingrid HM Steenhuis[1]
On behalf of the PEN Consortium
[1]Department of Health Sciences, Faculty of Science, Vrije Universiteit Amsterdam, Amsterdam Public Health Research Institute, De Boelelaan 1085, 1081 HV Amsterdam, the Netherlands: [2]Department of Human Geography and Spatial Planning, Faculty of Geosciences, Utrecht University, Utrecht, the Netherlands: [3]Chairgroup Consumption and Healthy Lifestyles, Department of Social Sciences, Wageningen University & Research, Wageningen, the Netherlands: [4]Department of Interdisciplinary Social Science, Faculty of Social and Behavioural Sciences, Utrecht University, Utrecht, the Netherlands: [5]National Institute for Public Health and the Environment (RIVM), Bilthoven, the Netherlands: [6]Department of Public and Occupational Health, Amsterdam UMC, University of Amsterdam, Amsterdam Public Health Research Institute, Amsterdam, the Netherlands

The Dutch context

- 50% adults and 13% of children have overweight or obesity [1]
- 24% of added sugar intake [2]
- No SSB tax

1. Volksgezondheidszorg.info (2019). https://www.volksgezondheidenzorg.info/onderwerp/overgewicht/
2. Rijksinstituut voor Volksgezondheid en Milieu (2018) https://www.rivm.nl/voedselconsumptiepeiling

Aim of the study

The aim of this study was to investigate the effects of an SSB tax and a nutrient profiling tax on consumer food purchases in a virtual supermarket.

Study design

Randomised (n=394)

Control (n=152)	SSB tax (n=130)	Nutrient profiling tax (n=112)
9% VAT on all products	9% VAT on all products	9% VAT on all products
	€0.21 per litre on SSB €0.28 per litre on SSB *(similar to UK's soft drinks industry levy)*	20% additional tax on "unhealthy" products *(label D or E)*

Setting: the Virtual Supermarket

Participants were instructed to conduct a typical weekly grocery shop for their household.

Participants, outcome measures and analysis

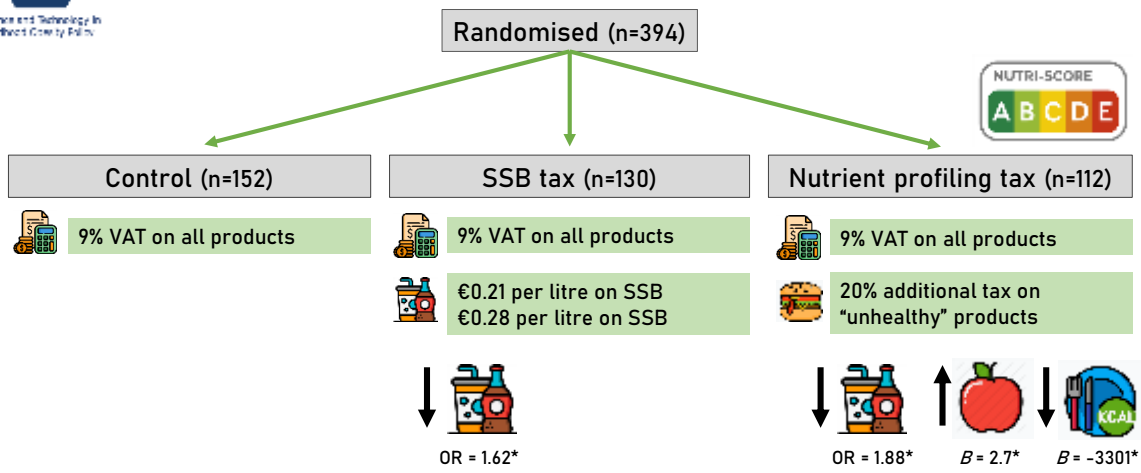
Dutch adults aged ≥18 years being responsible for grocery shopping in their household (n=394)

Outcome measures:

- SSB purchases in litres per household per week *(ordinal variable)*
- Overall healthiness of the total weekly food shopping basket *(proportion of total unit food items classified as healthy)*
- Energy (kcal) content of the total weekly food shopping basket

Data analysed using ordinal and linear regression analyses

Results



* = $P < 0.05$

Strenghts and limitations of the virtual supermarket

STRENGHTS

- The virtual supermarket has been validated
- Compare the effects of different tax options within the same, controlled environment
- No implementation issues

LIMITATIONS

- No information on product-reformulation
- The virtual supermarket is not identical to a real supermarket
  - *Hypothetical purchasing decisions*
  - *Assortment is not as extensive*

Conclusions

A nutrient profiling tax is effective in decreasing SSB purchases as well as in increasing the overall healthiness and decreasing the energy content of the total weekly food shopping basket.

In case of an SSB tax, effects were only observed on SSB purchases.

Conclusions

These findings implicate that a nutrient profiling tax targeting a wide range of foods and beverages with a low nutritional quality seems to have more beneficial effects on consumer food purchases than taxation of SSB alone.

Science and Technology in childhood Obesity Policy

What is the value of nutritional taxes in tackling childhood obesity: Going beyond SSB – the biscuit market

Maxime Tranchard (maxime.tranchard@tse-fr.eu) , presenting on behalf of the co-authors: Olivier Allais, Celine Bonnet, Pauline Leveneur, on behalf of the Science and Technologie in childhood Obseity Policy « **STOP** » project

Three-step methodology

1. Demand (random coefficient logit model) Details

Estimation of household preferences for different product characteristics and price variations

2. Supply (oligopolistic competition between firms)

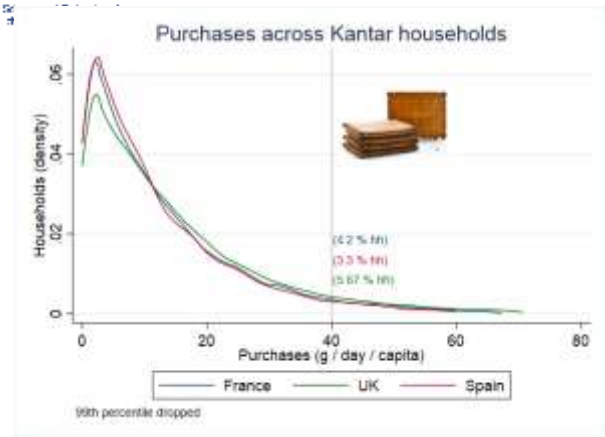
Pricing strategy, marginal costs of products Details

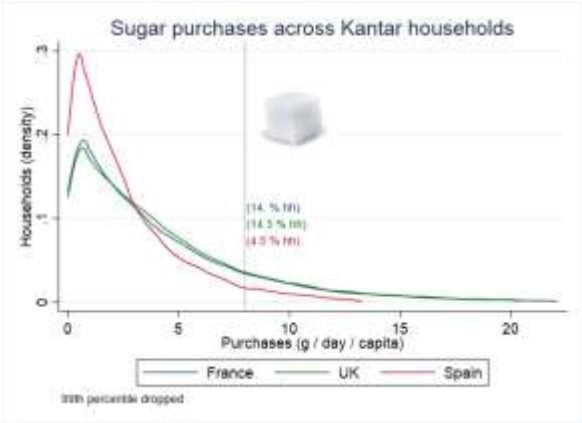
3. Counterfactual experiments

Simulation of taxation scenarios based on the sugar content of products

Effects of a tax on price, consumption and market shares

Biscuit market : Biscuit purchases vs Sugar

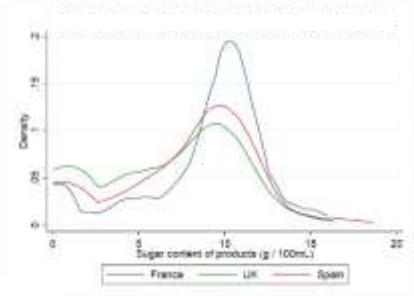




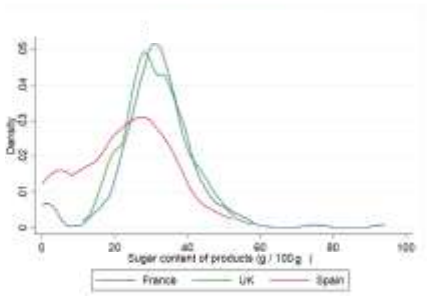
Soft drinks ?

Biscuit market : Differences in the product offer

Distribution of the sugar content of the non-alcoholic beverage offer



Distribution of the sugar content of the biscuit offer



Biscuit market : Results of simulation

Tax scenarios in the biscuits markets in France, the UK and Spain

	France	UK	Spain
Nutrient taxed (g /100g)		Sugar	
French tax with 4 thresholds			
< 23	0.25 €/kg	0.17€/kg	0.13 €/kg
$[\ 23\ ;\ 29\ [$	0.40 €/kg	0.28 €/kg	0.22 €/kg
$[\ 29\ ;\ 36\ [$	0.70 €/kg	0.49 €/kg	0.39 €/kg
$[\ 36\ ;\ 50\ [$	1.07 €/kg	0.74 €/kg	0.59 €/kg
≥ 50	1.44 €/kg	1.00 €/kg	0.79 €/kg
UK tax			
< 27	no tax	no tax	no tax
$[\ 27\ ;\ 32\ [$	1.88 €/kg	1.31 €/kg	1.03 €/kg
≥ 32	2.51 €/kg	1.74 €/kg	1.37 €/kg
Catalonia tax			
< 17	no tax	no tax	no tax
$[\ 17\ ;\ 27\ [$	0.60 €/kg	0.41 €/kg	0.33 €/kg
≥ 27	0.90 €/kg	0.62 €/kg	0.49€/kg
Tax subject to VAT	yes (5.5%)	no *	yes (10%)

* (only coated ones at 20%)

Sugar consumption reductions (in gram/day/capita)

	France	UK	Spain
French tax with 4 thresholds	0.39	0.62	0.34
UK tax	1.14	1.59	0.77
Catalonia tax	0.34	0.62	0.42

- The UK scenario is always the most effective
- All scenario are more effective in the UK
- French tax scenario is more effective in France than the catalonia one
- While the catalonia one is more effective in Spain than the french one.

Biscuit market : Heterogeneity in the sugar purchase reduction

High heterogeneity of the impact regarding demographic characteristics:

Conclusion

- The impact of the different tax scenario are heterogeneous between country
- And, even more while looking at demographic characteristics
- Higher range of taxation leads to higher decrease in purchase
- What we learn from SSB Taxation have to be use carefully while designing policy :
  - Impact of the number of thresholds and thresholds effectiveness depends of markets
  - For the same tax design, the type of household decreasing the most their consumption will change between country and markets

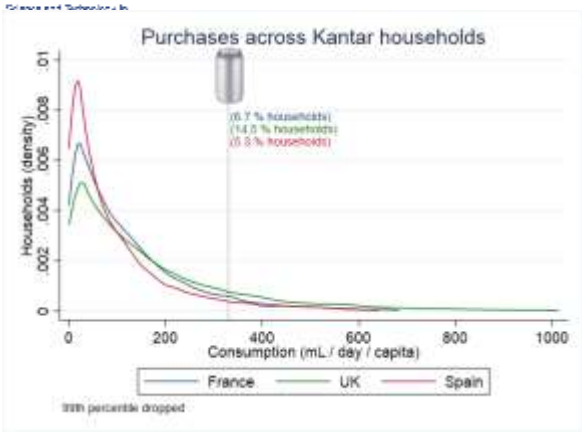
Conclusion

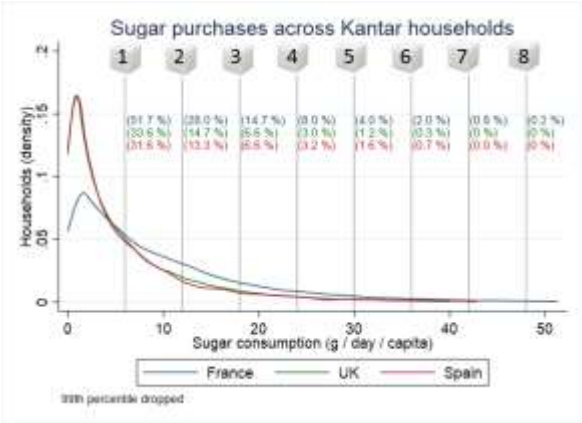
Our results suggests that targeting other products than SSB would have more beneficial effects on consumer food purchases than taxation of SSB alone.

Careful design of the tax is compulsory as other markets can have more heterogeneity* than the already existing one for soft drinks markets and will show differences with the soft drinks market

*in consumption between demographic characteristic and in the offer of products.

Supplementary material:





Back

Supplementary material:

Estimates of the random coefficient logit model

	Non-alcoholic beverages			Biscuits		
	France	UK	Spain	France	UK	Spain
Price (γ_{jc})						
Mean (α)	-2.65 (0.00)	-6.84 (0.00)	-5.35 (0.00)	-0.42 (0.00)	-1.33 (0.00)	-0.92 (0.00)
× children below 6	0.05 (0.00)	0.13 (0.00)	0.15 (0.00)	-0.02 (0.00)	0.02 (0.00)	0.03 (0.00)
× children 7-16	0.03 (0.00)	-0.03 (0.00)	-0.22 (0.00)	-0.01 (0.00)	0.04 (0.00)	0.06 (0.00)
× average class	-0.36 (0.00)	-0.24 (0.00)	-0.13 (0.00)	-0.02 (0.00)	-0.01 (0.00)	-0.01 (0.00)
× poor class	-0.70 (0.00)	-0.35 (0.00)	-0.36 (0.00)	-0.05 (0.00)	-0.05 (0.00)	-0.07 (0.00)
× at least one obese	-0.06 (0.00)	-0.12 (0.00)	-0.08 (0.00)	0.03 (0.00)	0.12 (0.00)	0.05 (0.00)
× all obese	-0.24 (0.00)	-0.15 (0.00)	0.00 (0.00)	-0.01 (0.00)	-0.00 (0.00)	0.02 (0.00)
Standard deviation (σ)	0.93 (0.00)	1.64 (0.00)	0.61 (0.00)	0.17 (0.00)	0.21 (0.00)	0.20 (0.00)
Diet	-1.59 (0.00)	1.02 (0.00)	-0.34 (0.00)			
× children below 6	0.09 (0.00)	0.13 (0.00)	0.30 (0.00)			
× children 7-16	0.06 (0.00)	0.07 (0.00)	0.21 (0.00)			
Sugar (SSBs)	-0.05 (0.00)	0.16 (0.00)	0.11 (0.00)			
× children below 6	0.05 (0.00)	0.03 (0.00)	0.02 (0.00)			
× children 7-16	0.04 (0.00)	0.03 (0.00)	0.02 (0.00)			
Sugar (fruit juices)	-0.06 (0.00)	0.03 (0.00)	0.14 (0.00)			
× children below 6	0.04 (0.00)	0.05 (0.00)	0.08 (0.00)			
× children 7-16	0.04 (0.00)	0.04 (0.00)	0.07 (0.00)			
Sugar (biscuits)				0.02 (0.00)	0.09 (0.00)	-0.02 (0.00)
× children below 6				0.02 (0.00)	0.01 (0.00)	0.02 (0.00)
× children 7-16				0.02 (0.00)	0.02 (0.00)	0.03 (0.00)
Other product characteristics	not shown	not shown	not shown	not shown	not shown	not shown
Error (ξ_{jc})	0.51 (0.00)	4.09 (0.00)	4.49 (0.00)	0.14 (0.00)	1.00 (0.00)	0.56 (0.00)
Observations	708,940	1,364,000	270,000	544,380	928,920	170,080
Log-likelihood	-1.53588e+10	-2.32081e+10	-9.05930e+09	-7.63538e+09	-7.10512e+09	-2.05663e+09

Back

Supplementary material:

Table A14: Elasticities and margins by firms (Non-alcoholic beverages market)

Firms	France		UK		Spain	
	Own-price elasticities	Margins (% price)	Own-price elasticities	Margins (% price)	Own-price elasticities	Margins (% price)
National brands						
Firm 1	-3.2	40.0	-6.5	19.2	-5.3	24.0
Firm 2	-3.7	29.6	-6.6	17.6	-4.9	23.1
Firm 3	-3.9	29.9	-8.2	12.6	-4.0	27.1
Firm 4	-4.6	22.9	-4.3	37.2	-6.4	20.8
Firm 5	-4.2	25.0	-5.6	19.5	-7.8	13.1
Firm 6	-2.9	36.0	-3.5	38.4	-5.4	20.1
Firm 7	-3.8	27.8	-4.8	21.4	-15.8	6.4
Firm 8	-6.2	16.3	-12.5	8.7	-9.8	10.3
Firm 9	-5.2	19.2	-10.8	9.8	-3.0	41.8
Firm 10	-4.7	21.6	-6.4	16.5	-11.3	8.9
Small firms	-4.0	27.7	-7.9	18.9	-10.5	16.4
Very small firms	-3.7	32.0	-7.5	15.3	-5.9	26.6
Private labels	-3.1	56.9	-4.4	52.3	-4.0	54.0

Firm 1 to Firm 10 are the ten firms with the highest market shares.
Thus Firm 1 in France is not necessarily the same than Firm 1 in Spain.

Table A15: Elasticities and margins by firms - Biscuits market

Firms	France		UK		Spain	
	Own-price elasticities	Margins (% price)	Own-price elasticities	Margins (% price)	Own-price elasticities	Margins (% price)
National brands						
Firm 1	-2.6	56.9	-5.4	35.0	-3.4	36.2
Firm 2	-3.2	33.3	-7.4	17.0	-3.9	33.1
Firm 3	-2.3	48.9	-6.0	19.8	-3.1	33.5
Firm 4	-3.2	33.8	-6.3	18.2	-3.9	28.4
Firm 5	-3.4	31.0	-11.2	9.6	-4.3	18.7
Firm 6	-3.5	29.3	-11.3	9.3	-3.8	26.8
Firm 7	-2.5	40.8	-10.7	10.2	-3.0	34.3
Firm 8	-3.5	29.5	-8.1	12.5	-3.3	33.3
Firm 9	-4.0	25.5	-9.9	11.0	-2.2	44.9
Firm 10	-2.0	55.4	-2.6	62.8	-4.0	21.7
Small firms	-3.3	34.5	-10.3	12.2	-5.5	21.2
Very small firms	-2.7	40.3	-5.7	23.2	-5.0	22.1
Private labels	-2.5	68.5	-4.9	60.2	-2.9	67.2

Firm 1 to Firm 10 are the ten firms with the highest market shares.
Thus Firm 1 in France is not necessarily the same than Firm 1 in Spain.

Back