



Price measurement and the tax incidence of behavioural taxes: empirical evidence using scanner data (France)

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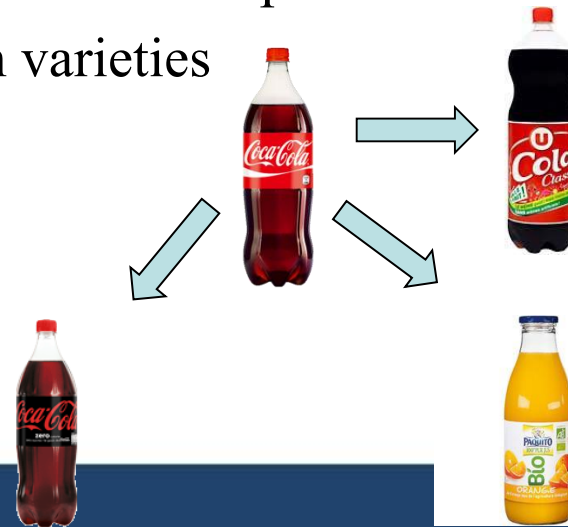
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Behavioral taxation and tax incidence

- A key determinant of the impact of behavioural taxes is their incidence on consumer prices, *'everything else equal'*:
 - Tax incidence = Actual price variation ÷ *'Expected'* price variation
 - *'Everything'* = Cost structure, market structure, consumer tastes.
- Tax incidence depends on consumer/retailer/producer behavioural reactions to price changes (supply and demand price elasticities).
 - Consumers can substitute between varieties
 - Within product categories
 - Across product categories.



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 - Consumers can substitute between product varieties and across product categories.
 - Producers/retailers will take this into account, as well as their cost structure and the market structure (competition) to decide whether they under- or over-shift the tax onto prices.
- In general, tax incidence \neq 100%.

Behavioral taxation and tax incidence

- Economic theory and empirical studies focus mainly on the incidence of taxes on the price of product varieties:
 - Oligopolistic competition theoretical models predict that unit excise taxes are rather over-shifted when competition is low, or brand-fidelity is high. Ad valorem taxes are rather under-shifted.
 - Confirmed by empirical *ex-ante* econometric studies... based on these theoretical models.
- Yet, the relevant margin for computing public health benefit is the consumer variation in aggregate *quantity* of products purchased from a target category: Δ in the consumption of SSB.

Behavioral taxation and tax incidence

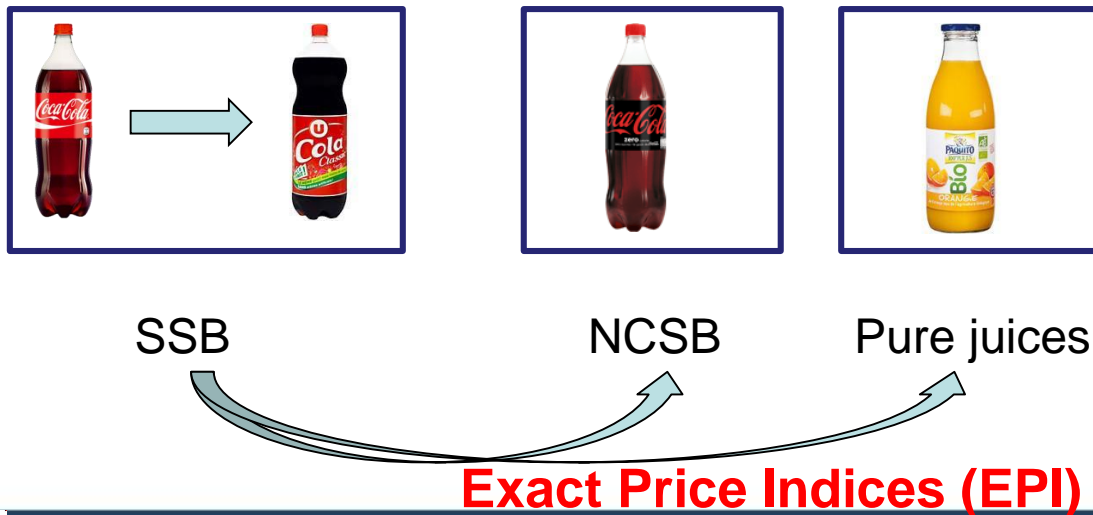
- Illustration using simulation results from Bonnet & Requillart (JPubEc, 2013): 2002-2005 homescan data, soft-drink market.

	Quantity effect: consumption of added sugar	Quality of SSB: average sugar density of purchases
Observed value	1666 g/cap/year	92.1 g/L
VAT increases from 5.5% to 19.6% for SSB	-352 g/cap/year	92.0 g/L
Excise tax of 0.09 ct/100g of sugar	-629 g/cap/year	92.6 g/L

- **Health benefits are obtained through substitutions toward NCSB products and an aggregate ‘outside good’ (naturally sweetened fruit juices).**

Tax incidence & price measurement

- Key empirical issue: Incidence of the tax on the price index of SSB?
- Price index measurement issue: a well-behaved price index must reflect consumer ability to substitute across varieties within a product category, i.e. consumer choice of quality.



Concluding remarks

- Comparison with existing results:
 - *Ex-ante* evaluation studies using structural econometric studies predict tax incidence over 100% (Bonnet & Requillart, 2013): over-estimation due to misspecified supply side models?
 - *Ex-post* evaluation results for the Berkeley soda tax (1ct/oz) in line with our findings:
 - Cawley & Frisfold (2015): 22% (Product variety level, DiDiD)
 - Falbe et al. (2015): 47% (Product variety, DiD)
- Caution in the use of results from simulation studies (*ex-ante* econometric evaluation):
 - Overestimate the pass-through
 - Not always based on theoretically-founded price indices