


## The Effect of a Nutrient Tax

**Kathy Baylis, Tirtha Dhar, and Sohini Paul**  
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## Background

Energy-dense, nutrient poor (ENDP) foods tend to be cheaper (Drewnowski and Specter 2004).

- fish at \$18.82 per 1000 cal (Edmonton grocery store)
- Apples at \$6.00 per 1000 cal (Vancouver grocery store)
- Wendy's value meal at \$3.45 per 1000 cal
- 7-11 double big gulp at \$2.10 per 1000 cal



WHO, CMA and various public health groups argue for financial incentives around food consumption

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## Some past studies

- A number find an effect
  - French et al (2001) experiment with vending machines and saw 10% price decrease in low-fat snacks increased sales.
  - Schroeter, Lusk and Tyner (2007) and Tefft (2006) show a tax on high-cal soft drinks would decrease weight.
  - Mytton, Gray, Rayner and Rutter (2007) Targeted tax in the UK
- Others less optimistic
  - Kuchler Tegene and Harris (2004, 2005) show consumers not very responsive to (very small) price of salty snacks
  - Smed, Jensen and Denver (2005) find that a fat tax might increase sugar consumption and vice versa.
  - Oaks (2005) looks at snack tax in Maine and finds no effect on consumption.
  - Chouinard et al (2007) look at dairy foods, and although they argue they find effect (low elasticity of demand for fat), show 10% tax on dairy fat does lead to 1% reduction in fat consumption

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## Past studies cont'd

- Evidence in favour of subsidies
  - Cash et al. (2005) on fruit and vegetable subsidies
  - Jeffery et al. (1994, 1997) cafeteria experiment on fruit and vegetable prices and selection.
  - Asfaw (2007) show subsidies of fruit, milk and eggs are associated with lower BMI in Egypt, and higher prices on energy-dense foods lead to a higher BMI
  - Clark and Levedahl (2006) argue that increasing income would have a larger effect than a tax

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## Arguments against

- Is the externality real?
  - Yes. Even in US with private healthcare, extra costs to medicare and medicaid are substantial.
  - US costs in 1998 estimated to be at least \$92.6B, ½ from Medicare/Medicaid
  - Canada cost estimates range from \$1.6 B to \$6 B
- The externality will change per person
  - True, but can target foods that most overconsume, and/or are more addictive
  - Debate around whether there are 'bad' foods.
  - Richards, Patterson and Tegene (2004) use scanner data and find that carbohydrates, fat, protein and sodium may be addictive.

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## Arguments Against

- Regressive
  - Poor are more likely to consume ENDP foods, and
  - Poor spend higher % of income on food
  - But, we have GST rebate, and
  - Might be able to subsidize some foods
- Complicated
  - Current tax code?

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## GST/PST rules



Which is taxed?

- Breakfast bars (e.g. pop tarts) versus granola bars
- Bagged salad, including dressing versus pre-made salad
- Ready-to-heat soup versus hot soup.
- Milk at a restaurant versus no-fruit 'juice drink' at a convenience store
- Varies by province
- Food tax amount and type varies by US state

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## Arguments in favour



- Can change consumer behaviour (elastic response is good)
- May encourage reformulation (as with trans fats and ad. rules)
- Raises revenue (inelastic response is good)
- Information/stigma (Cash et al, 2008)



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## What we are doing



- Using 2001 Household food expenditure survey in Canada, estimated demand elasticities.
- Use nutrient information from Health Canada to predict the distribution and effect of taxes.

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## Own-price elasticity estimates



Commodity	Price-elasticity
Beef	-0.56
Pork	-1.35
Chicken	-0.85
Lamb and other meat	-1.16
Meat preparations (e.g. bacon)	-0.95

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## What we find so far



- Using meat consumption, a tax on fat decreases beef and bacon and sausage expenditure and increases pork and chicken expenditure.
- Thus, even for relatively broad categories, consumers are price sensitive.

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## Next steps



- Complete current demand system estimation and nutrient model
- Consider income distribution
  - poor people have different substitution patterns than rich
- Use scanner data to look at specific food categories (frozen foods)

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## Take-home message



- We already have a tax that makes value judgements
  - “Eating out is bad. Eating ready-made food is bad. Eating 6 doughnuts is OK tho...”
- This tax could be targeted more directly at nutrients
- Very initial evidence that consumers will respond to price incentives
- Regressivity needs to be addressed, through GST rebate and/or food subsidies

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