

## Health-related taxes and subsidies



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## Aims

- Summarise other people's research on health-related taxes and subsidies
- Summarise 'our' research
  - Introduce nutrient profiling
- Identify gaps in the research
- Develop a strategy for introducing health-related taxes and subsidies in the UK

## VAT on foods in the UK

### Foods that are taxed

Chocolate biscuits  
 Ice-cream gateau

Confectionery  
 Savoury snacks  
 Soft drinks

Beef burgers from a catering outlet

Sandwiches in a catering outlet

Mineral water  
 Orange juice

### Foods that are not taxed

Iced biscuits  
 Cream cakes

Butter  
 Sausages

Beef burgers from a shop

Sandwiches from a catering outlet(?) or from a shop

Fruit and vegetables  
 Bread

## Evidence base

- WHO Regional Office for Europe's Health Evidence Network (2006) What is known about the effectiveness of economic instruments to reduce consumption of foods high in saturated fats and other energy-dense foods for preventing and treating obesity? WHO-Euro: Copenhagen  
<http://www.euro.who.int/document/E88909.pdf>

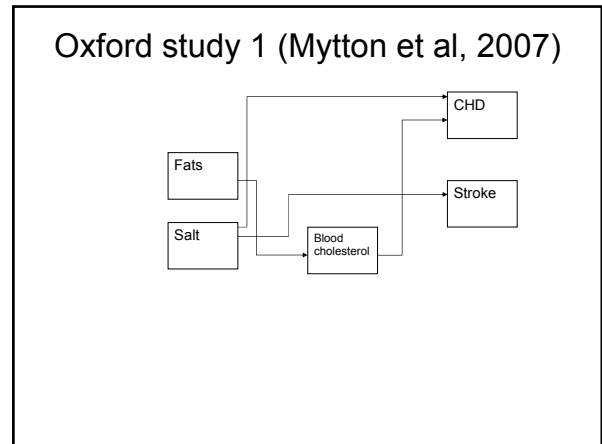
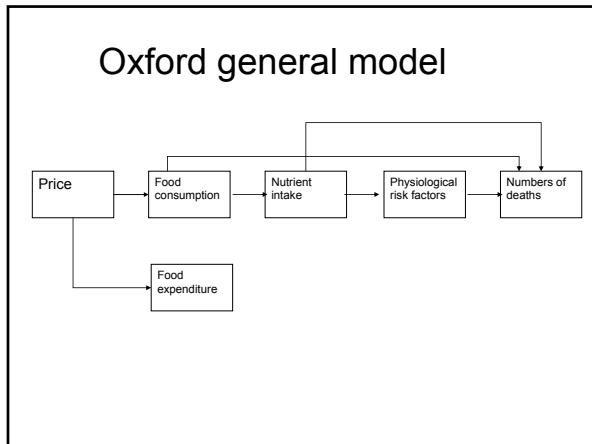
## Health-related taxes and subsidies: modelling studies

	Country	Positive Effects	By socio-economic group	Limitations	Strengths
Marshall, 2000	UK	Yes	No	No real elasticity data	Effects on health outcomes
Liechester & Windmiejler, 2004	UK	No	Yes	Only effects on consumption	
Smed et al, 2005a	Denmark	Yes	No	Only effects on consumption	
Smed et al, 2005b	Denmark	Yes	Yes	Only effects on consumption	
Akademiet for de Tekniske Videnskaber, 2007	Denmark	Yes	Yes	Only effects on consumption	Taxes and subsidies
Mytton et al, 2007	UK	Yes	No	Only effects of taxation	Effects on health outcomes
Nnoaham et al, 2008	UK	Yes	Yes		Taxes and subsidies Effects on health outcomes

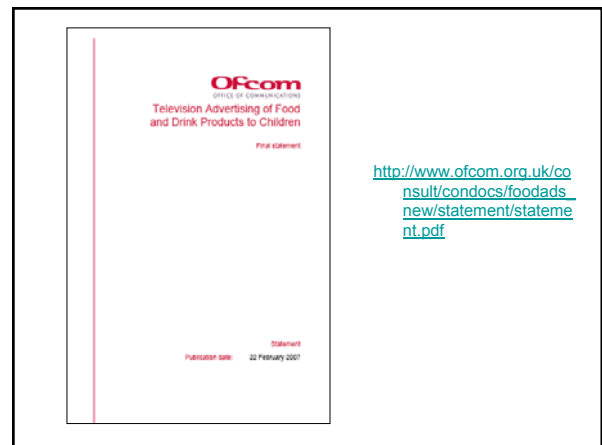
Source: WHO Health Evidence Network, 2006; updated

## Modelling studies use

- Price elasticity data
- Food consumption data
- Nutrient composition databases
- Results of studies relating foods/nutrients to health outcomes



- ### Oxford study 1 (Mytton et al, 2007)
- Taxing the principal sources of saturated fat (following Marshall 2000)
  - Taxing unhealthy foods as defined by a nutrient profiling model
  - Taxing a wider range of foods to obtain best health outcome



### Final model (WXYfm)

Points →	0	1	2	...	10
Energy (kJ)	≤335	≤670	≤1005	...	>3350
Sat fat (g)	≤1.0	≤2.0	≤3.0	...	>10.0
Total sugar (g)	≤4.5	≤9	≤13.5	...	>45.0
Sodium (mg)	≤90	≤180	≤270	...	>900
					5
Protein (g)*	≤1.6	>1.6	>3.2	...	>8.0
Fibre (NSP) (g)	≤0.7	>0.7	>1.4	...	>3.5
Fruit, Veg & Nuts (g)	≤40	>40	>60	...	>80

*For both food and drinks: scores are based on the content of nutrient in 100g.*

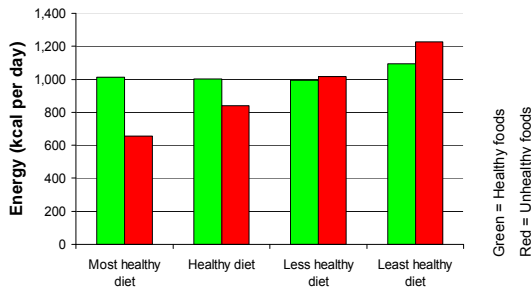
*\*If food scores 11 for protein, fibre and F&V then scores 0 for protein except if scores 5 for FV&N*

Healthy/Intermediate food = 3 or less	Less healthy food = 4 or more
Healthy/Intermediate drink = 0 or less	Less healthy drink = 1 or more

### How this model categorises foods

Examples of 'healthy' foods	Examples of intermediate foods	Examples of 'less healthy' foods
peaches (-11) lettuce (-11) wholemeal bread (-3) walnuts (-1)	mackerel (0) oven chips (0) fried rice (1)	Mars bar (23) Cheddar cheese (23) crisps (16) jam doughnuts (5) currants (5)
	whole milk (0) skimmed milk (-2) diet cola (0)	cola (2)

### Construct validity testing: results



Source: Aramebepola C, Scarborough P, Rayner M. Validating a nutrient profile model. Public Health Nutrition, 2008,11:371-9.

### Oxford study 1: Results

	Marshall	Our repeat of Marshall	Nutrient profiling	Best outcome
Change in household food expenditure (%)	NE	3.2	4	4.6
Percent of total food expenditure taxed	NE	9.9	33.3	44.5
Percent of dietary saturated fat taxed	44	41	64	80
Change in saturated fat intake	-0.67	-0.13	0.09	0.05
Change in salt intake (%)	NE	5.2	-5.8	-6.6
Change in non milk extrinsic sugar intake (%)	NE	-1.5	-7.3	-7.6
Change in calories consumed (%)	NE	2.2	-4.3	-6.1
Change in fruit and vegetable intake (%)	NE	-1.2	-3.9	-3.9
Mean change in serum cholesterol (mmol/l)	-0.044	0.002	0.009	0.005
Change in mortality from IHD (%)	-1.8 to -2.6	1.3 to 2.0	-0.8 to -1.1	-1.2 to -1.5
Change in mortality from stroke (%)	NE	1.5 to 1.7	-1.6 to -1.9	-1.8 to -2.1
<b>Overall change in annual number of CVD deaths (UK)</b>	<b>Decrease</b> 2500 to 3500	<b>Increase</b> 2100 to 3100	<b>Decrease</b> 2100 to 2500	<b>Decrease</b> 2600 to 3200

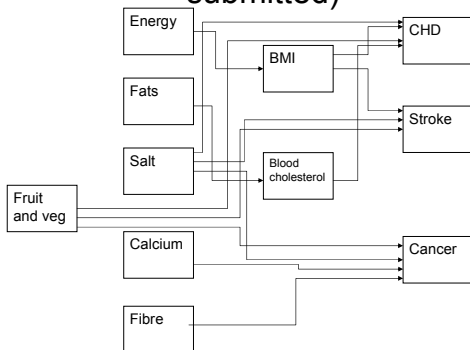
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### Strengths and weaknesses

- Does have health outcomes
- Elasticity data only for broad categories
  - E.g. Models treated all margarines and spreads the same
- Does not look at effects by socio-economic group
- Only looks at taxes and not subsidies

### Oxford study 2 (Nnoham et al, submitted)



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- Taxing the principal sources of saturated fat by 17.5% (following Marshall 2000)
- Taxing unhealthy foods as defined by a NP model by 17.5%
- Taxing unhealthy foods as defined by a NP model by 17.5% + subsidising fruit and veg by 17.5%
- Taxing unhealthy foods as defined by a NP model by 17.5% + subsidising fruit and veg by 32.5% (revenue neutral)

### Oxford study 2: Results (provisional)

	Our repeat of Marshall	Nutrient Profiling	Nutrient profiling + low subsidy	Nutrient profiling + high subsidy
Change in household food expenditure (%)	4.5-8.0	5.0-5.4	4.0-4.7	5.3-6.1
Change in saturated fat intake (%)	-2.3	-3.1	-0.9	0.8
Change in salt intake (%)	0.2	-1.9	-1.1	-0.5
Change in energy intake (%)	-0.5	-2.4	-0.9	3.5
Change in fruit intake (%)	-8	-5	-0.2	4
Change in vegetable intake (%)	-2	-2	10	20
Change in CVD deaths per annum	716 to 573	351 to -207	-1381 to -1768	-2873 to -3110
Change in cancer deaths per annum	2958 to -194	1035 to -2743	-1802 to -5074	-977 to -103311
<b>Overall change in annual number of deaths (UK)</b>	<b>Increase</b> 379 to 3663	<b>Increase/decrease</b> -1386 to 2951	<b>Decrease</b> 3184 to 6843	<b>Decrease</b> 3868 to 13423

### Results: Nutrient profiling + high subsidy (provisional)

	Quintile 1 (£134)	Quintile 5 (£1468)
Average weekly income		
Change in household food expenditure (%)	6.1	5.3
Change in saturated fat intake (%)	0.6	0.7
Change in salt intake (%)	-0.8	-0.3
Change in energy intake (%)	-0.2	0.7
Change in fruit and veg intake (%)	11.4	10.2
Change in CVD deaths per annum	-617 to -704	-577 to -609
Change in cancer deaths per annum	-312 to -2011	-190 to -2170
<b>Overall change in annual number of deaths (UK)</b>	<b>Decrease</b> 929 to 2716	<b>Decrease</b> 767 to 2780

- ### Strengths and weaknesses
- Does have health outcomes
  - **Elasticity data only for broad categories**
    - E.g. Models treated all margarines and spreads the same
  - Does look at effects by socio-economic group
    - **But no income-related price elasticity data**
  - Looks at taxes and subsidies

- ### Gaps in the research
- Modelling studies from more countries
    - Better elasticity data:
      - By product rather than product category
      - By income group
  - Evaluation of actual tax/subsidy changes
    - Intended (Norway)
    - Unintended (Jersey)

### SWAT analysis: a (long-term?) campaign to introduce health-related taxes and subsidies in the UK

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Cost effective</li> <li>Similarities with other health-related taxes and subsidies (tobacco, alcohol, free fruit scheme)</li> <li>Synergies with carbon taxes</li> </ul>	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>WHO are committed to developing 'tools'</li> <li>Other countries considering introduction</li> </ul>
<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Regressive</li> <li>Supposedly wrong to interfere with the market</li> <li>Unpopularity of taxes</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Food industry opposed</li> <li>Obesity crisis overwhelmed by financial/ environmental crisis</li> <li>World-wide increase in food prices</li> </ul>