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Institute of Food and Resource Economics

Food tax reform – effects on consumption and household economy in different social groups: Results from a Danish study

Jorgen Dejgaard Jensen
Jorgen@foi.dk



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Outline

- Introduction
- Economic incentives and barriers in the consumption of healthy and unhealthy foods
- The case for food taxes as an instrument to promote healthy eating
- Three food tax reform scenarios
- Effects of food tax reform on consumption
- Economic consequences of food tax reform
- Discussion and conclusions

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Rationale: Economic incentives and food consumption

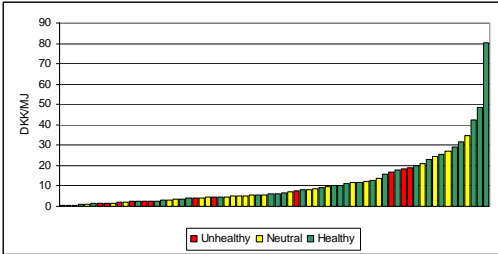
If:
Consumers are rational and maximise utility
Utility increases with the amount of individual goods consumed, but at a decreasing rate
Consumers' choices are restricted by a budget constraint

Then:
Consumers will tend to choose the cheaper option
A change in relative prices will make consumers switch some of their consumption from commodities that have become relatively more expensive towards commodities which become relatively cheaper
An increase in real income (either by an increase in nominal income or a decrease in price level) will tend to increase consumption

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Healthy calories are more expensive!



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Social classes

- Social dimension in food consumption
 - Income
 - Education
 - Social relations
 - Geography
 - Values
 - ...

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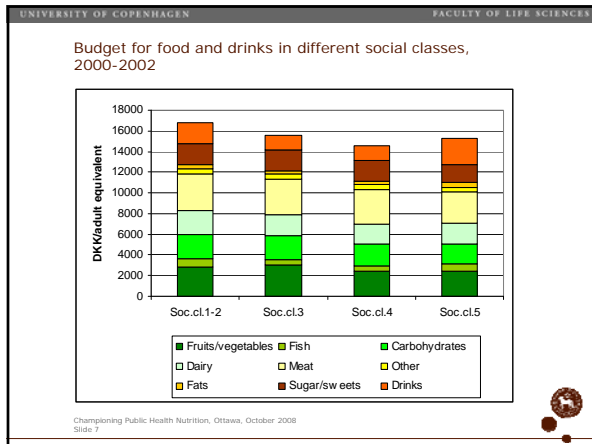
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Social classes

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 - ...

Social class 1	Owners of firms with 21+ employees Leading position with 51+ staff Academic education
Social class 2	Owners of firms with 6-20 employees Leading position 11-50 staff Semi-long education
Social class 3	Owners of firms with 0-5 employees Leading position 1-10 staff
Social class 4	Lower position, Skilled workers
Social class 5	Unskilled workers, students Unemployed, retired, outside work force

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The case for food taxes as an instrument to promote healthy eating

- Three types of strategies to promote healthy eating
 - Demand-side interventions (information, labelling, advertising...)
 - Supply-side interventions (availability, bans, regulations)
 - Market interventions (taxes, subsidies)

Selection problems with some of the demand- and supply-side intervention types

Selection patterns may be different for market intervention instruments

Economic incentive instruments have been widely used in environmental regulation, but also to regulate the consumption of tobacco and alcohol

But the use of economic incentives to regulate food consumption has been relatively scarce, worldwide

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Danish study

Initiated by the Danish Academy of Technical Sciences (ATV) in 2006

Working group with leading Danish scientists in nutrition, health and economics

Aim: To illuminate pros and cons of economic incentive instruments to tackle the obesity challenge

As a part of the study, analyses of three tax reform scenarios were requested

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Three food tax reform scenarios

- Tax reduction on healthy foods** (rice, pasta, potatoes, fruits, vegetables, fish and seafood)
- Tax increase on unhealthy foods** (cakes, biscuits, sugar and sugar products, butter, margarine, eggs)
- Combined tax reform:** Tax reduction on healthy foods and tax increase on unhealthy foods

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Economic model for quantitative analysis

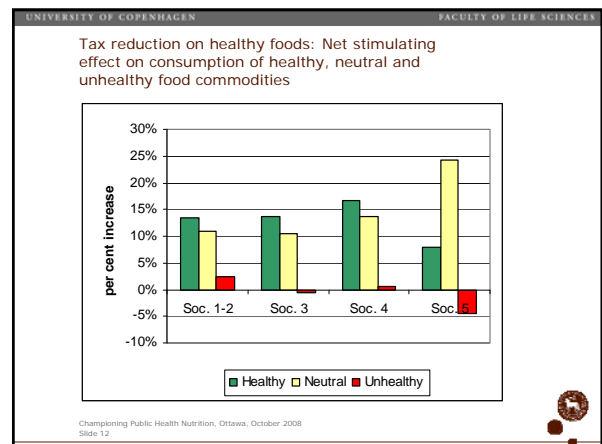
Price elasticities

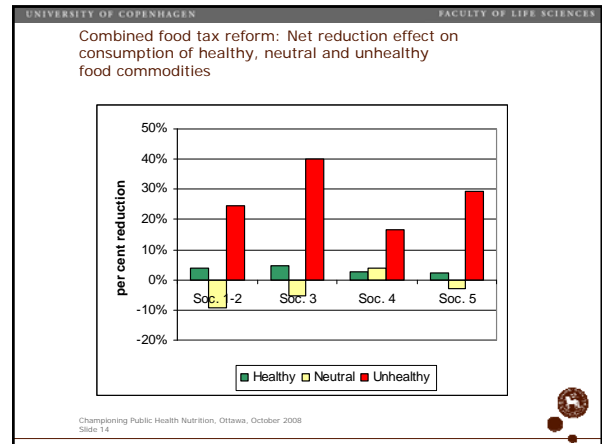
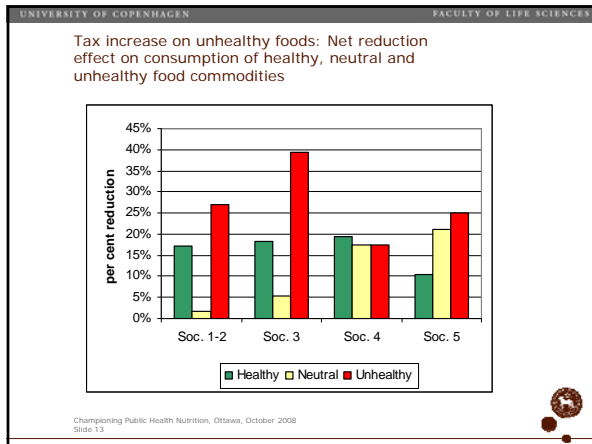
- Own-price effects
- Cross-price effects
- Disposable budget effects

Empirical values for these parameters were estimated by means of statistical (econometric) methods, based on GfK household data

GfK household data:
Weekly observations on detailed shopping from approx. 2000 Danish households over a 4-year time span (1997-2000).
Detailed background information on participating households

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Food tax reform and food consumption effects

Lower tax on healthy foods will tend to stimulate consumption of healthy and neutral foods, but have only limited effect on the consumption of unhealthy foods

For consumers in the lowest social class, the stimulating effect on healthy foods is more moderate, but here the tax reform reduces the consumption of unhealthy foods

Higher tax on unhealthy foods will reduce consumption of unhealthy foods – but to the largest extent in the upper social classes

Higher taxes on unhealthy foods will however also reduce the consumption of healthy foods – and for the lower social classes also the consumption of neutral foods

A combined food tax reform will mainly reduce the consumption of unhealthy foods

Income effect: A decrease in some prices without increase in other prices provides the consumers with a higher **real** budget, which affects food consumption as a whole positively – and reversely for a tax increase. This explains why other foods than the targeted ones are affected in the same direction.

The income effect is smaller in the combined tax scenario.

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Economic consequences for households

At initial prices and initial budget, consumers are able to obtain a certain utility level

At changed prices, they will be able to obtain another (higher or lower) utility level, but changed relative prices will provide them with incentives to change the composition of their food basket.

A lump-sum (positive or negative) transfer to the consumers may enable the consumers to obtain the same utility level as was possible at initial price conditions.

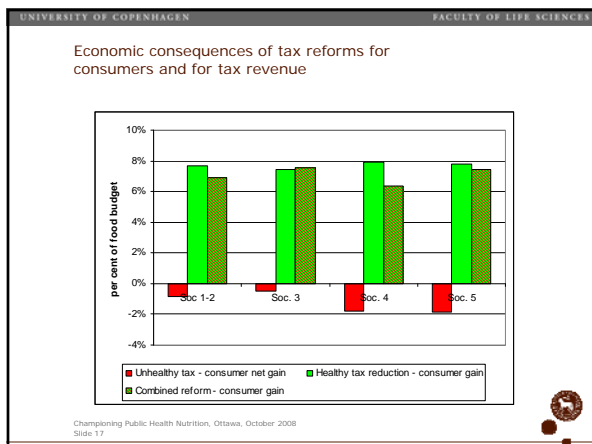
Consumer net loss is defined as the minimum net transfer that is necessary to enable this.

Consumer net gain is the negative of consumer net loss

Price changes that leave the consumers better off (e.g. a tax reduction) is expected to yield a positive net gain.

Price changes that leave consumers worse off (e.g. a tax increase) is expected to yield a negative net gain.

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Economic consequences

Relative to the food budget, a tax increase on unhealthy foods has more negative economic impacts on households in lower social classes.

Tax reduction on healthy foods or combined tax reform seems to have similar relative economic effects in all social classes

Not included: Economic benefits derived from improved health

- Reduced public sector health care costs
- Reduced loss of human capital in the labour market
- Improved quality of life

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Discussion

Economic incentives work, if consumers are rational in an economic sense – but are they? What about psychological aspects, genetic aspects, networks/social aspects etc.

No strong social trends in the food consumption impacts of the three food tax reform scenarios. To which extent does this differ from other intervention strategies?

Economic consequences of lower taxes on healthy foods seem to be relatively similar across social classes. Higher taxes on unhealthy foods tend to have more serious economic consequences in the lower social classes

What are healthy foods? And unhealthy foods? And for whom?

- Nutritional perspective
- Administrative perspective

Legal challenges – will food tax differentiation discriminate in international trade? Could food tax reform be coordinated internationally?

