"Nutrition" taxes: the costs of Denmark's fat tax

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In 2011, Denmark became the first country to establish a "fat tax", imposed on so-called saturated fats. The Danish experience is highly instructive: barely a year after being implemented, the tax was abolished because of the adverse effects it produced without any real impact on consumption habits.

THE FAT TAX AND NUTRITION TAXES IN DENMARK

The Danish "fat tax" was presented as part of a tax reform package in 2009.[1] Following a number of amendments, it was finally adopted in March 2011 and took effect on October 1 of the same year. It hit all food items with a saturated fat content exceeding 2.3%. Apart from drinking milk, several other products — including meat, cheese, butter and margarine, along with oils and delicatessen products — were affected. As well, products made from these foods, such as chips and other snack items, *even if saturated fat accounted for less than 2.3% of the finished product*,[2] were subjected to the tax, which amounted to 16 Danish kroner (about 2.15 euros) per kilogram of saturated fat.[3]

In fact, this was not Denmark's first tax specifically targeting food products. Consumers of spirits and beer, as well as chocolate, ice cream, soft drinks, sweets and so on, have long been paying additional taxes applied to these drink and food items.

According to estimates, Danish consumers had to pay an extra amount of more than one billion euros in 2012 for their food, including nearly 170 million euros for the fat tax alone (see Table 1).

ARE PEOPLE CONSUMING TOO MUCH FAT?

Saturated fat is "accused" — like soft drinks and other food products — of promoting obesity and causing disease, especially cardiovascular illness. According to estimates, 80% of adults and children in Denmark consume more saturated fat than recommended in official dietary guidelines — 10% more than their total energy consumption.[4]

If the public authorities wished to apply a measure as extreme as fiscal constraints, it would be logical to assume that fat intake had risen sharply in recent years.

Table 1

Estimate of the added cost from Danish taxes on food and drinks in 2012 (millions of euros)	
Tax on spirits	143.9
Tax on wine	203.8
Tax on beer	137.7
Tax on alcopops	5.4
Tax on chocolate	275.3
Tax on ice cream	36.3
Tax on mineral water, fizzy drinks and juice	67.2
Fat tax	**167.9**
Total	1037.4

Source : Danish tax ministry, 2013.

Although the consumption of certain products has indeed increased, as is the case with cheese, beef and chicken (which is lower in fat than pork), per capita consumption of most products containing saturated fat has not risen but has, on the contrary, declined in various instances (see Figure 2).

In 2009, per capita consumption of butter, margarine, fats and pork — the products hardest hit by the fat tax — was lower than in the early 1990s, by 67%, 48%, 20% and 44% respectively. A recent study on Danish fat consumption in the 20th century concluded that fat products "contained significantly larger proportions of mono- and polyunsaturated fatty acids[5] than they had at the beginning and the middle parts of the 20th century." The study also found that total per capita fat consumption had actually fallen by 43% between its peak in 1958 and 1999.[6]

1. The official aim of this reform was to replace part of Denmark's relatively high income tax, with marginal rates varying from 42.1% to 63%, by levies including new "health" taxes such as the fat tax. See the report for the OECD by the Danish tax ministry, "Danish Tax Reform 2010," pp. 11-12, available at: http://www.skm.dk/public/dokumenter/engelsk/Danish%20Tax%20Reform_2010.pdf.
2. See the presentation sheet from the Danish tax ministry, "New duty on saturated fat imposed on certain foods in Denmark," available at: https://www.skat.dk/SKAT.aspx?oId=1950194&vId=0.
3. See items including the OECD report "Obesity Update 2012," p. 4, available at: http://www.oecd.org/health/49716427.pdf.
4. See S. Smed, "Financial penalties on foods: the fat tax in Denmark," *Nutrition Bulletin*, 37, pp. 142-146.
5. Those fats are judged better for heatlh.
6. See Terra Jensen, "The consumption of fats in Denmark: 1900-2000," *Anthropology of Food*, S7, 2012, available at: http://aof.revues.org/7100.

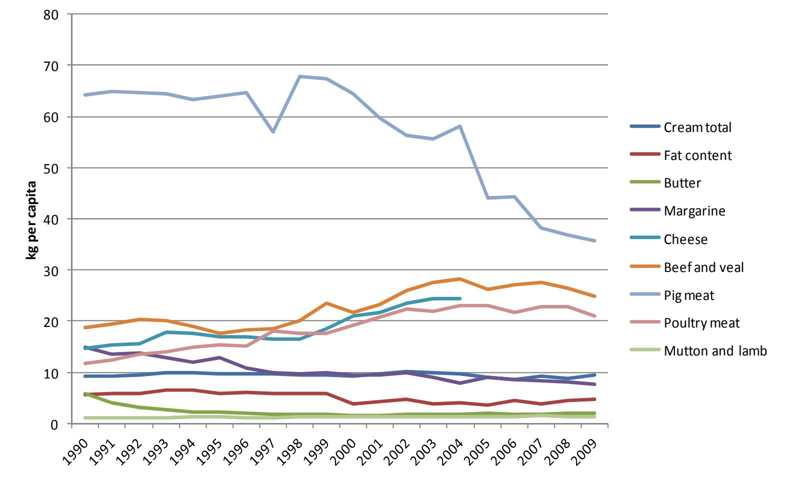
AN INCOMPLETE ECONOMIC REASONING

A line of economic reasoning has been advanced to justify the imposition of nutrition taxes. According to this reasoning, consumption levels of certain foods, in this instance saturated fat, are judged to be too high, particularly in relation to specific costs — negative "external effects" in economic jargon — that are disregarded by consumers but felt by the public health care system. The tax, and the higher prices that stem from it, are seen as a way of reducing consumption of the foods in question. This should lead, at least on paper, to better health for the overall population, lower health care costs and, therefore, a return to balanced books for the public health care system.

But this reasoning is incomplete. Beyond the fact that there exists no scientific certainty as to the "optimal" quantity of saturated fat that each individual should absorb, this reasoning disregards two key factors. The first is the loss of well-being that some consumers suffer by paying more for their food, even though they have no need to lower their fat consumption. The second is the multitude of new costs and adverse effects this tax imposes on businesses and on the domestic market as a whole.

Figure 1

Per capita consumption of products containing fat, 1990-2009



Source : Statistics Denmark; graph produced by the author.

A REGULATORY CONUNDRUM AND LOSS OF COMPETITIVENESS FOR BUSINESSES

While the amount of the fat tax may be a problem in itself, it seems that collecting and instituting it has been especially costly, weakening small and medium enterprises in Denmark.

The law required companies that produced or imported products containing saturated fat to calculate and declare the quantities of fat contained in each of their products and to pay the corresponding taxes. Meanwhile, products intended for export were exempted.

Instituting these administrative formalities proved far more complex than anticipated. Formalities of this sort require a range of financial, human, computer and logistical resources.

Saturated fat content may be hard to calculate, especially for products containing many ingredients. In such cases, companies are taxed on the basis of total fat content or, if this quantity is also unknown, on the basis of products' net weight.[7] In some cases, the amount of the fat tax was actually based not on the saturated fat contained in the finished product but on the quantity used in production. For example, an importer of chips had to pay the fat tax based on the quantity of oil used in production rather than on the actual quantity of saturated fat contained in the chips themselves.

Although it is hard to tote up the fat tax's administrative and paperwork costs for Danish companies as a whole, these costs have been very real. For example, the CEO of a 200-employee Danish company producing margarine and other products containing fat estimated these costs at 201,000 euros in 2012, including costs for a new computer system.[8] An average-sized industrial bakery producing Danish pastries had to spend 57,000 euros, with administrative management of the fat tax requiring a full person-day of work per month, a considerable administrative burden for a company of that size.[9]

On the wholesale and retail side, a survey by the Danish Chamber of Commerce among its members found that the fat tax's administrative costs may have hit 200 million kroner (nearly 27 million euros).[10]

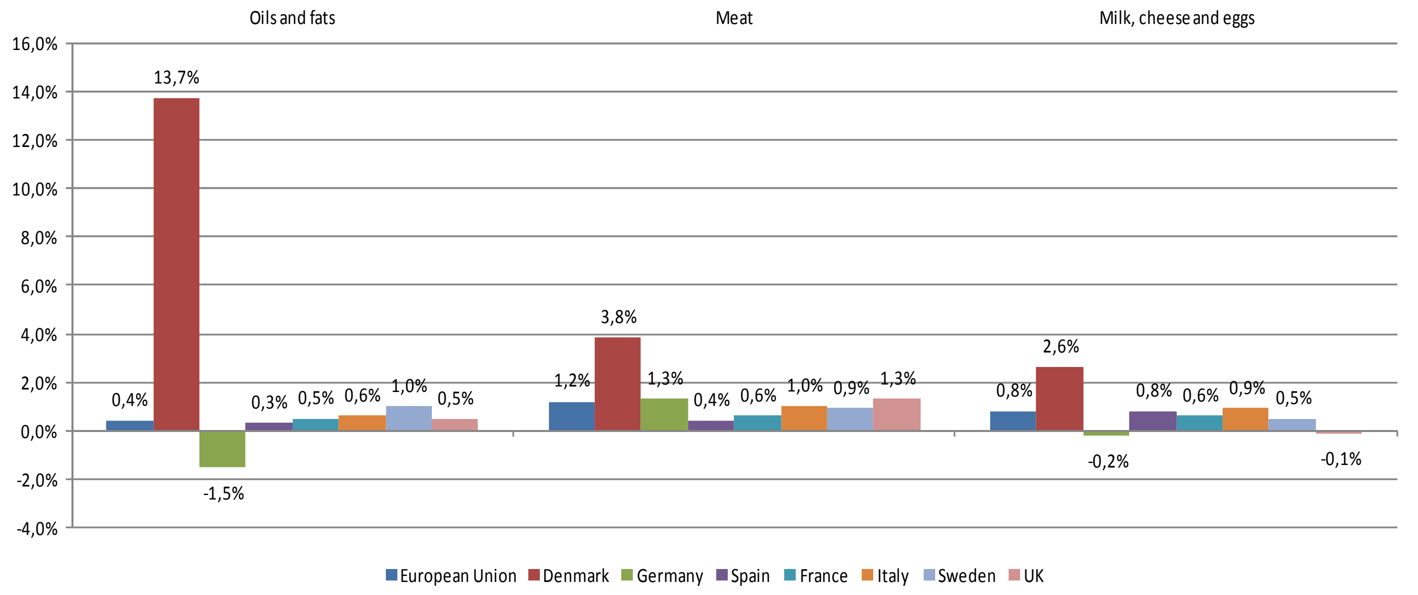
PRICES SOAR

One effect that was obviously sought by the fat tax was an artificial increase in the prices of the items covered. It is worth comparing price changes in Denmark with those in other European countries to get an idea of the scope of this phenomenon.

7. See Danish tax ministry, "New duty on saturated fat imposed on certain foods in Denmark," *op. cit.*
8. See Stefan Hansen, "Dragsbæk Margarinefabrik gør status efter fedtafgiften," January 10, 2013, available at: http://www.food-supply.dk/article/view/94880/dragsbaek_margarinefabrik_gor_status_efter_fedtafgiften.
9. See Thomas From, "FEDTAFGIFTEN Optimal beskatning og casestudy af Mette Munk A/S," Master's Thesis, Nationalokonomisk Institut, Aarhus Universitet, January 2012.
10. See the news release "Fedtafgiften — et dyrt bekendtskab," November 21, 2012, available at: http://www.danskerhverv.dk/Nyheder/Sider/Fedtafgiften---et-dyrt-bekendtskab.aspx.

Figure 2

Price changes of certain foods between September and December 2011



Source : Eurostat; calculations and graph produced by the author.

Prior to introduction of the fat tax, Danish prices were close to the European average. When the tax came into force on October 1, 2011, prices jumped in the final quarter of the year by about 14% for oils and fats, 4% for meat and 3% for milk, cheese and eggs (see Figure 2). These increases were 34, 3.2 and 3.3 times as much, respectively, as the average increase in the European Union.

These increases in Denmark created a significant differential between the prices of products sold in Denmark and the same products sold in neighbouring countries, Germany in particular. Amidst an economic crisis, the fat tax had the logical result of inducing cash-strapped households to shop outside the country so as to limit the loss of purchasing power and well-being caused by the new tax.

DESTRUCTION OF MARKETS AND A SOURCE OF WASTE

The fat tax thus gave a fresh boost to trans-border trade, with Danish consumers reducing their purchases in Denmark and stocking up in neighbouring countries.[11] Because of the heavy taxes on certain products, such as beer and soda, many consumers were in the habit of shopping in Germany, often buying Danish products there.[12]

It is hard to assess the true scope of this trade incited by the fat tax alone. However, official estimates suggest that trans-border trade in fats, oils, cheese and meat may have doubled between 2010 and 2011, going from 75 million kroner to 150 million kroner (from 10 million to 20 million euros).[13]

This hurt the competitiveness of the food industry's structure and of the distribution system. The tax had the effect of penalising the domestic market, meanwhile causing needless job losses.

Various examples suggest that the weakening of domestic sales market has hurt companies in the food industry and the retail trade, which have had to lay off workers. According to estimates from the Danish Agriculture and Food Council (which represents Danish farmers and food companies), this may have accounted for the equivalent of 1,300 jobs.[14]

11. Trans-border trade with Germany is especially dynamic. Products are hit not only with the fat tax but also with a 25% value added tax in Denmark, compared to only 7% in Germany, creating a substantial price differential.
12. See the article "Danish fat tax: a feast for German border shops," November 13, 2013, available at http://www.euractiv.com/consumers/danes-buy-danish-beer-germany-news-514372, and the poll conducted for DSK (an organisation representing retailers) which is cited there, available at: http://www.dsk.dk/Nyheder/pressemeddelelser/Naesten6udaf10hargraensehandlet.html. Nearly 60% of the Danish households questioned were found to have bought beer or soda in Germany during the previous year, while, in 2008, 60% said, on the contrary, they had not made any trans-border purchases.
13. See Danish tax minsitry, "Status over graensehandel Bilagsrapport 2012," p. 178: http://www.skm.dk/public/dokumenter/presse/Statusovergraensehandel2012bilag.pdf.
14. See the analysis from the Danish Agriculture and Food Council, "Fedtafgiften koster 1.300 beskæftigede jobbet," June 26, 2012, available at: http://www.lf.dk/~/media/lf/Tal%20og%20analyser/Samfundsokonomiske%20analyser/Oekonomisk_Analyse_fedtafgift.ashx.

The fat tax has ended up leading to a massive waste of resources. Consumers have been induced to buy Danish products in other countries, accounting for time, fuel and car use that could have been applied more productively. Companies have been pushed into shipping products abroad rather than selling them domestically, leading to all sorts of needless additional costs.

Given this record, were there at least any worthwhile results in terms of consumption and health?

DOUBTFUL EFFECTS ON CONSUMPTION AND HEALTH

Beyond the fact that recent scientific studies have cast doubt on the consensus view of a necessary decline in the consumption of saturated fat,[15] the effects of the fat tax on consumption and health may have been negligible or even counterproductive.

An initial study, using purchasing data, suggests declines of 10% to 20% in consumption of butter, margarine and oil in the last quarter of 2011 (i.e., the first three months after the fat tax took effect).[16] However, more recent numbers indicate a far smaller decline in consumption, which may have been only 0.4% over the period from October 2011 to July 2012.[17] A survey from the Danish Agriculture and Food Council also points to the absence of any notable effect on consumption among those surveyed: about 80% said they had not altered their consumption after the fat tax was imposed.[18]

A tendency to buy cheaper products or varieties — possibly creating greater risk in cases of over-consumption — was also observed.[19] The beneficial effects of lower consumption of the products covered by the tax depend on the products substituted for them, as well as on consumers' physical activity and calorie expenditure. Unless consumers decide to alter their diets on their own, the effectiveness of nutrition taxes on health remains doubtful or even counterproductive, because such taxes are likely to lead to substitutions that might be even more harmful to the health.

CONCLUSION

The implementation of a fat tax in Denmark produced an array of adverse economic effects that led to its abrogation one year later. Producers, distributors and consumers alike suffered from its effects in terms of jobs, competitiveness and well-being.

The unpopularity of the tax was such that the government also abandoned a new tax on products such as yogurt, ketchup, pickles and cabbage that was set to take effect on January 1, 2103.

Although the health effects are hard to discern over such a short period, the fact remains that fat consumption in Denmark has been on a long-term downward trend, and no tax incentive was needed for this to happen.

The Danish were fortunate that the adverse effects became so highly visible. This should serve as a warning to public authorities in various other countries who have been tempted to set out on the road to nutritional taxes. The Danish minister of finance was unambiguous in this regard: "to tax food for public health reasons [is] misguided at best and may be counterproductive at worst".[20]

15. See for example "The role of reducing intakes of saturated fat in the prevention of cardiovascular disease: where does the evidence stand in 2010?," *American Journal of Clinical Nutrition*, Vol. 93, No. 4, April 2011, pp. 684-688; Renata Micha and Dariush Mozaffarian, "Saturated Fat and Cardiometabolic Risk Factors, Coronary Heart Disease, Stroke, and Diabetes: a Fresh Look at the Evidence," *Lipids*, 45, 2010 pp. 893-905; and Patty Siri-Tarino *et al.*, "Saturated fat, carbohydrate, and cardiovascular disease," *American Journal of Clinical Nutrition*, Vol. 91, 2010, pp. 502-509.
16. See J. Jensen and S. Smed, "The Danish tax on saturated fat: Short run effects on consumption and consumer prices of fats," Institute of Food and Resource Economics, University of Copenhagen, working paper 2012/14, available at: http://okonomi.foi.dk/workingpapers/WPpdf/WP2012/WP_2012_14_Danish_fat_tax.pdf.
17. See Henrik Denman, "Fedtafgift et en fiasko for sundheden," August 18, 2012, available at: http://www.business.dk/foedevarer/fedtafgift-er-en-fiasko-for-sundheden.
18. See the Userneeds survey "Interviewundersøgelse om Fødevarer," Danish Agriculture and Food Council, September 2012, available at: http://www.lf.dk/~/media/lf/Aktuelt/Nyheder/2012/September/Gr%C3%A6nsehandel.ashx.
19. See J. Jensen and S. Smed, 2012, *op. cit.*, and Henrik Denman, 2012, *op. cit*. In addition, 44.2% of those surveyed by L&F said the fat tax pushed them to buy cheaper products.
20. See http://www.foodnavigator.com/Legislation/Danish-government-scraps-fat-tax-cancels-planned-sugar-tax.

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