

IB Economics - internal assessment coversheet

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<p>Section of the syllabus the article relates to (please tick the one that is most relevant)</p>	<p>Section 1: Microeconomics ✓</p> <p>Section 2: Macroeconomics</p> <p>Section 3: International economics</p> <p>Section 4: Development economics</p>
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Tax meat and dairy to cut emissions and save lives, study urges (07/11/16)

Surcharges of 40% on beef and 20% on milk would compensate for climate damage and deter people from consuming as much unhealthy food

Climate taxes on meat and milk would lead to huge and vital cuts in carbon emissions as well as saving half a million lives a year via healthier diets, according to the first global analysis of the issue.

Surcharges of 40% on beef and 20% on milk would account for the damage their production causes people via climate change, an Oxford University team has calculated. These taxes would then deter people from consuming as much of these foods, reducing both emissions and illness, the team said.

Food production causes a quarter of all the greenhouse gas emissions that are driving global warming, largely from the raising of cattle and other livestock. These emissions are increasing as people around the world become richer and eat more meat.

Marco Springmann, from the Oxford Martin Programme on the Future of Food, who led the study, said: “It is clear that if we don’t do something about the emissions from our food system, we have no chance of limiting climate change below 2C.”

“But if you’d have to pay 40% more for your steak, you might choose to have it once a week instead of twice.”

The research, published in the journal Nature Climate Change, evaluated the tax required for each food type to compensate for the climate damage its production causes. Beef has a **heavy footprint**, due to the **deforestation and methane emissions** associated with cattle and the grains they are fed, and needed a 40% tax on average across the world.

The scientists then assessed how much less of each food type would be eaten as a result of the taxes. They examined different tax regimes and found the optimum arrangement in terms of both emissions and health was to combine the taxes with **subsidies for healthy foods**, such as fruit and vegetables, and payments to people to **compensate for price increases**. This **ensured poorer people did not end up with worse diets as the result of taxation**.

This optimum tax plan would **reduce climate emissions by 1 billion tonnes a year** – the same as the entire global aviation industry. This huge potential cut in emissions surprised Springmann, as did the heavy impact of dairy products.

Changes to how food is produced and consumed have largely been ignored in the battle against climate change, due **to public sensitivity about their food choices**, fears about increasing hunger in poorer parts of the world and the lack of straightforward measures to tackle the problem.

“If people see any food price rise, they get angry, so you have to explain why you are doing it,” said Springmann, adding that **a successful food tax policy could spend all the money it raised on ensuring people could afford healthier diets**. He said a tax in Denmark on unhealthy saturated fats, where the government simply kept all the revenue, was aborted after a year. But in Mexico, a sugar tax on soft drinks has been successful after the funds were spent on free drinking water in schools.

Most of the foods with big climate impacts also happen to be **unhealthy when eaten in large quantities, such as beef** and dairy. Therefore, if climate taxes cut consumption, fewer people would die from related diseases such as **heart disease, strokes and cancers**. In the US, for example, people eat three times the recommended level of meat. The researchers found climate taxes would save more than half a million early deaths every year, largely in Europe, the US, Australia and China.

However, **cutting the demand** for meat and dairy would not be easy, said Rob Bailey, research director at UK thinktank Chatham House: “The challenge is political. As the new research demonstrates, in many countries there is a very strong public health and climate case for dietary change, but it isn’t happening. Governments are reluctant to ‘interfere’ in people’s lifestyle choices for fear of a **public backlash and criticism** for ‘nanny statism’, as well as the **reaction from powerful interests in the food industry and agricultural lobby.**”

Bailey said there was currently **little pressure on governments to act**, partly because the **public understanding of the link between diet and climate change is low**. But, when people are **informed**, they find meat taxes far less unpalatable than is supposed, he said.

Calls to cut meat-eating, by the UN and high-profile figures including climate change experts and the economist Lord Stern, have so far been both rare and controversial.

The new research found the taxes needed to compensate for climate damage were 15% on lamb, 8.5% on chicken, 7% on pork and 5% on eggs. Vegetable oil required a large tax of 25%, but this was due to the low initial price of the product, making a relatively modest surcharge look high.

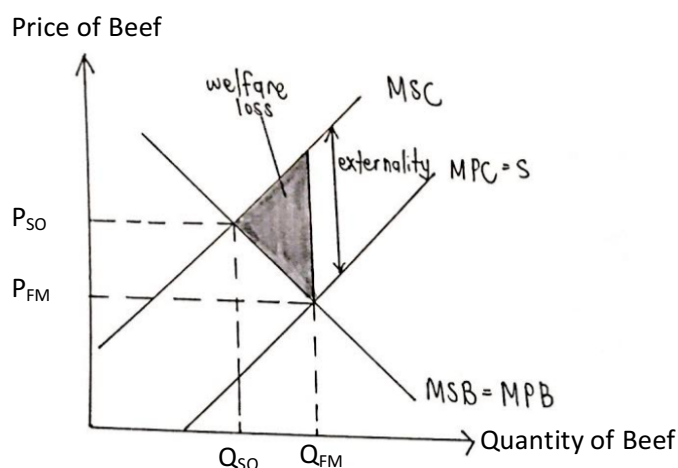
These tax levels were global averages but there was significant variation with, for example, the beef tax being higher in **Latin America**, where cattle-raising produces more emissions than in other regions. The optimum tax plan also had regional variations, including limiting climate taxes to beef in the lowest income countries, to ensure people there were still able to afford decent diets.

Springmann said it was critical to find a way to cut the environmental impact of food production: “Either we have climate change and more heart disease, diabetes and obesity, or we do something about the food system.”

Commentary on: Surcharges on Beef

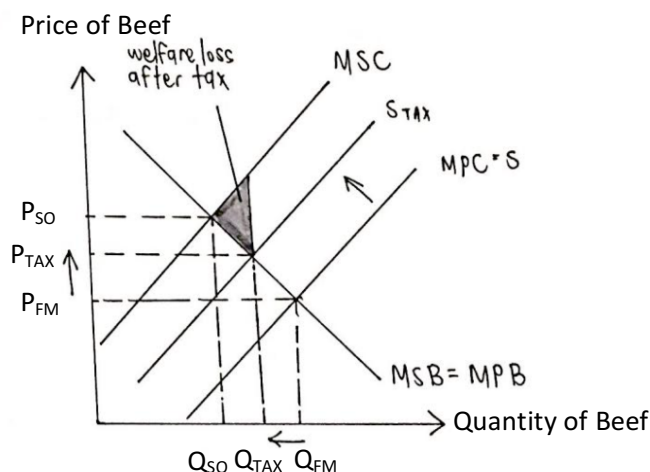
Climate taxes on beef would lead to huge and vital cuts in carbon emissions and climate damage, as well as saving half a million lives annually via healthier diets, per the first global analysis of the issue. In the article, there has been market failure attributable to the negative externalities in both production and consumption of beef, with more emphasis on that of production in this commentary. Market failure can be defined as a situation where the allocation of resources by a free market is inefficient. A growing demand for meat has led to negative externalities of production arising when the production of beef creates spill over costs on a third party not involved in the transaction. The external costs in this case would be deforestation and methane emissions, a potent greenhouse gas, which drives global warming and hence climate change, an increasingly pressing global issue. **Graph 1** below illustrates this market failure.

Graph 1. Market Failure in the Market for Beef



As seen in **Graph 1**, where Marginal Social Benefit (MSB) is equal to Marginal Social Cost (MSC) the socially efficient price and quantity of beef, P_{SO} and Q_{SO} respectively, is achieved. Under free market conditions, however, producers will produce where Marginal Private Benefit (MPB) is equal to Marginal Private Cost (MPC) and with an equilibrium price of P_{FM} , there is inefficient allocation of resources and beef is overproduced at Q_{FM} . The external cost, being methane emissions into the atmosphere, is the distance between MSC and MPC, with a welfare loss of the shaded area. Any point beyond the optimal output and price ($Q_{SO}P_{SO}$) produces the negative externality. With all costs accounted for, the optimal level of beef production (Q_{SO}) is significantly below that of the free market level of beef production (Q_{FM}) and the equilibrium price of beef (P_{SO}) is above the free market price of beef (P_{FM}). This shows that beef, a good with negative externalities, is overproduced and sold at prices lower than that of the equilibrium, resulting in market failure.

Graph 2. Tax on Market for Beef



Graph 2 shows the implementation of a 40% tax on beef. This shifts the MPC curve leftwards as producers face a higher cost of production, raising the price to P_{TAX} which is closer to that of the social optimal price (P_{SO}). Consumers would be less willing and able to pay the higher prices, causing a contraction in demand which reduces the amount of beef consumed to Q_{TAX} , again closer to that of the social optimal quantity (Q_{SO}). This tax implementation only covers a portion of the externality, as seen by the smaller shaded triangle in **Graph 2** compared to that of **Graph 1**. This internalizes the externality, by compelling consumers and producers, who are directly involved in the transaction, to pay the external costs of their actions.

However, the effectiveness of taxation is limited. The tax does not fully get rid of the externality, only reducing it which means that there would still be lasting emissions building up slowly in the environment which will eventually lead to global warming. Negative externalities of beef consumption also exist, examples being heart diseases. The tax could work alongside subsidies for healthier food options like vegetables or fruits, which are weak substitutes for beef. This ensures that rising prices in the market for beef would divert demand to these healthy foods, so that people do not suffer from a worse diet because of the tax on beef where they may flock to cheaper and unhealthy choices. There is also an information failure on the public's part, leading to further market failure, where the link between diet and climate change is not defined and a tax on beef may set off a chain of adverse responses. A possible solution to the issue is to invest in educational and awareness programmes for the public on both diet and the climate and their subsequent links, leading to a more well-informed population who would make preferable choices, reducing the externality and hence market failure.

Ultimately, a tax might be largely effective but still has its shortfalls, as mentioned above. Policies such as, but not limited to, education and awareness programmes, and subsidies may be run alongside the tax to minimize the negative externality of beef consumption and production as much as possible.

References:

EconomicsHelp (2015) *Helping to Simplify Economics* [Online]

Available at: <http://www.economicshelp.org/micro-economic-essays/marketfailure/negative-externality/>