


# The Moral Justification Behind a Climate Tax on Beef in Denmark

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**Abstract** This paper discusses the moral justification behind placing a tax on foods in correlation with their greenhouse gas emissions. The background is a report from 2016 by the Danish Council of Ethics promoting a national tax on the consumption of meat from ruminants as an initial step to curb the 19–29% of total anthropogenic greenhouse gas (GHG) emissions stemming from the food sector. The paper describes the contribution of food production and consumption to climate change and how a change in diet, away from ruminant meat in particular, could lead to substantial reductions in GHG emissions from food production and consumption. We discuss whether, given the anticipated effects on humans and the nature of climate change, individual consumers have a moral responsibility to change their diet and/or whether governments are justified in restricting the individual consumer's freedom of choice through taxation in order to effectively reduce emissions. The paper concludes that such an intervention is warranted and necessary, both from an efficiency perspective and from an ethical perspective.

**Keywords** Climate change · Food climate impact · Ethical consumerism · Climate tax

## Introduction

Climate change is happening and there is general agreement among scientists that it is largely caused by anthropogenic factors. The need for reductions in greenhouse gas emissions is widely recognized, with the Paris Agreement from December 2015 committing nations to keep

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temperature rises below 2 °C as compared with pre-industrial levels. It is difficult to see how this will be achieved without also targeting emissions from the 19–29% of total anthropogenic GHG emissions stemming from the entire food supply chain (Vermeulen et al. 2012, 198). Overall, plant-based foods have much lower emissions than animal-based foods, emissions from ruminant meats being about 250 times those of legumes per gramme of protein (Tilman and Clark 2014).

The responsibility for avoiding climate-unfriendly foods currently rests entirely with the consumer. One reason for this is that food choices are often seen as private in a way that makes intervention by governments uncalled-for. We make the argument that more direct government interference in individual food choices can be seen as ethically legitimate. Morally speaking, being the only actors with the necessary resources and capacities to redirect diets at a sufficient scale towards more sustainable choices, governments ought to do so.

These arguments are in line with the Danish Council of Ethics' (2016) recommendation for a national tax on ruminant meat as an initial step to countering GHG emissions from the food sector. We present the recommendations and discuss some of the objections to the recommended tax based on the reactions it provoked from the media, politicians and many walks of public life. It should be noted that the arguments presented in this paper apply equally to other activities that release greenhouse gases, but the focus here will be on the role of the food production and consumption.

### **Anthropogenic Climate Change**

The current understanding is that the ongoing climate change is largely anthropogenic, that is, man-made. Cook et al. (2013) examined 11,944 climate abstracts from 1991 to 2011 in the peer-reviewed scientific literature and found that 97.1% endorsed the consensus position that humans cause global warming.

The work of the IPCC (2014a) sums up the body of contemporary knowledge about the causes of the changes observed: Anthropogenic greenhouse gas emissions have led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented for at least the last 800,000 years. These human activities “are extremely likely to have been the dominant cause of the observed warming since the mid-twentieth century”. It should be noted that “extremely likely” is defined as a 95–100% probability (Mastrandrea et al. 2010).

### **Political Initiatives Have Overlooked the Food Sector**

Climate change will seriously harm people all over the world, future generations, non-human species and ecosystems (IPCC 2014b). This implies that contributing to climate change is *prima facie* a moral issue.

The severity of climatic change is self-evident, and agreement that governments have to act to drastically reduce GHG emissions is now widespread, with the Paris Agreement in December 2015 requiring nations to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” (United Nations 2015a). The measures taken so far have, however, been very far from sufficient, and recent anthropogenic emissions of greenhouse gases are the highest in history (IPCC 2014a).

In recent years, a number of reports and scientific papers have pointed to the close connection between climate change and animal production (Steinfeld et al. 2006; Ilea 2009; Herrero et al. 2011; Gerber et al. 2013). In light of this and the continuing and escalating warming of the planet documented by e.g. NASA and IPCC (NASA 2016; IPCC 2014a) it is hard to imagine that the

ambitious targets of the Paris Agreement can be reached unless production and consumption of animal protein is decreased (Kim et al. 2015).

Food systems contribute 19–29% of total anthropogenic GHG emissions (Vermeulen et al. 2012). Furthermore, the FAO has forecast that food production must increase by 60% by 2050 because of population growth and increasing incomes leading to a dietary shift towards more meat consumption, especially in developing economies (Alexandratos and Bruinsma 2012). The global population is forecast to grow from 7.2 billion in 2013 to 9.7 billion in 2050 and reach 11.2 billion in 2100 (United Nations 2015b). The ensuing predicted increase in meat consumption of 200 million tonnes, will bring it to a total of 470 million tonnes in 2050 (FAO 2009), which is a major problem since this food item is the main issue when discussing GHG emissions from the food sector. 14.5% of human-induced GHG emissions already stem from the livestock sector, and within this category beef production accounts for 41% while dairy cattle account for 20%. (Gerber et al. 2013).

### Great Potential for Reductions

Different food categories have very different climate footprints. While cattle contribute 61% of the sector's emissions, pig meat contributes 9%, buffalo milk and meat 8%, and chicken meat and eggs 8% (Gerber et al. 2013). Overall, plant-based foods have much lower emissions than animal-based foods. In life cycle assessments the greatest difference is between ruminant meats (beef and lamb) and legumes, where the emissions per gramme of protein in the first category are about 250 times those of the latter. Per kg of products, ruminants (cattle, sheep goats) have the highest GHG emissions. Monogastric (single stomach) livestock (pigs and poultry) emit fewer GHGs, and fruits, vegetables and grains have the lowest carbon footprint. (Tilman and Clark 2014; Bryngelsson et al. 2016).

A number of studies have analyzed the potential to reduce GHG emissions from food consumption through dietary change. There is great potential, mainly depending on the amount and type of meat and animal products included in the diet. A shift to a vegetarian or vegan diet can reduce emissions by 20–55%, while substituting monogastric meat (pork or poultry) for ruminant meat alone can reduce GHG emissions by 20–35% (Hallström et al. 2015). Recently research into emissions from alternative sources of food have been carried out showing that diets without farmed meat (artificial meat, dairy, insects or plant based diets) has the potential to cut GHG emissions to less than a third of diets containing meat (Röös et al. 2016; Halloran et al. 2016; Tuomisto and de Mattos 2011).

Although it goes beyond the scope of this paper, it is worth mentioning that a substantial number of studies confirm that shifting diets towards less meat (particularly from ruminants) and dairy intake would not only reduce GHG emissions but simultaneously result in water and land use reductions as well as having modest benefits for all-cause mortality risk (Aleksandrowicz et al. 2016; Etemadi et al. 2017).

### Climate-Friendly Food Choice Left Entirely to the Consumer

Despite the severity of the problems caused by climate change, there appears to be a significant gap between the emission reductions which countries have committed to in the Paris Agreement and what is required to keep temperature rise below 2 °C. As pointed out by Chatham House, an independent policy institute based in London, reducing meat consumption is an obvious strategy to close the gap, but governments seem to hold back for fear of repercussions

from such an intervention in consumers' dietary choices. However, through focus group interviews conducted in Brazil, China, the UK and the USA, the report found that resistance to government intervention in meat consumption would be short-lived, particularly if people understood the policy rationale (Wellesley et al. 2015).

Nevertheless, policy interventions currently concentrate mainly on emissions from fossil fuels, while shifting diets in a climate-friendly direction by reducing meat consumption is left solely to the consumer. This, we will argue, is a strategy that is highly inefficient as well as morally problematic.

### Practical Challenges to Ethical Consumption

Public awareness around the connections between food choices and climate change is generally low (Wellesley et al. 2015), even if this is beginning to change. But even for consumers with an inclination to choose climate-friendly foods, a range of practical limitations seems to dissuade them from acting on this inclination:

- It can seem futile for individuals to act alone in order to counter climate change when other consumers seem to carry on buying whatever they fancy
- Likewise there is a non-linear connection between cause (the individual consumer's food choice) and effect (the impact of climate change), which can make it difficult for individual consumers to relate to the negative consequences of their food choices
- It is not economically rational for the individual consumer to abstain from using as many common resources as possible as long as they have no price tag ("tragedy of the commons")
- The price of climate-detrimental foods is currently too low due to externalities in the form of damage to nature and humans not being included in the price of the good. This market failure makes it economically unattractive to choose the climate-friendly alternative.

These demotivating factors help explain why leaving it to consumers and the market to solve the problem of the food sector's contribution to climate change would seem not to be an effective strategy. Furthermore, the concept of ethical consumerism brings with it several other problems, including the lack of transparency in a cacophonous food market where consumers are bombarded with conflicting messages from multiple stakeholders and more general issues relating to the role of citizens in democratic processes. Thus it has been argued that leaving ethical choices with a societal impact to the individual consumer undermines the ideal of democracy as an open discussion among citizens by reducing it to an individual decision taken from the narrower perspective of the consumer (Gjerris et al. 2016).

Taken together, all these factors suggest that a more efficient approach to reducing climate change from the food sector would be to adopt collective societal action through policies that seek to influence consumer patterns, e.g. through regulation by taxes or prohibitions. As Wellesley et al. (2015) conclude:

*Governments are the only actors with the necessary resources and capacities to redirect diets at scale towards more sustainable, plant-based sources of protein* (Wellesley et al. 2015: vii).

### Government Intervention and the Harm Principle - when is It Legitimate to Restrict the Freedom of the Individual?

In calling for government intervention in our food choices we enter into charged territory; food choices are often perceived as private and very personal, in that much of our identity and views

are reflected in the food we choose to eat (Mintz and Du Bois 2002). Even those who are not critical of government regulation as such can therefore be opposed to interventions in their right to choose what to put on their plates.

We will argue that the claim that what we eat is private in a way that would make it ethically problematic for governments to intervene is unsubstantiated when we look at the larger issue of when it is acceptable for governments to limit the freedom of its citizens.

British philosopher John Stuart Mill famously formulated “The harm principle” which can be seen as a “minimal conception” - that is; one that will be accepted from most positions within political philosophy - of when government intervention is warranted:

*The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant* (Mill 1859: 11).

By referring to the harm principle, we want to make the overall claim that even from a restrictive view on the role of governments it would seem that intervention in the individual’s food choices to prevent climate change and its consequences is ethically justified. There is extensive debate on the concept of doing harm and the kinds of harm that count morally, but it will suffice here to acknowledge that the harm caused by climate change seriously harms other people by threatening their basis for living, and this is sufficient grounds for governments to impose regulation in order to reduce GHG emissions.

Which interventions would be most effective, and hence warranted, is of course open to discussion. It is difficult to imagine a situation where ruminant meat would be banned altogether. One reason for this is that the arguments in favour of a ban would apply equally, if to varying degrees, to a range of other everyday activities we engage in, leading to overly detailed discussions about where to draw the line on what to ban. Another reason is that, at this date, such a ban would be highly unpopular and most likely do more harm than good in promoting an understanding of the need to reduce GHG emissions from our food. So the suggestion here is to impose an economic incentive, through taxation, to lower emissions from non-essential high-impact foods. No one will be malnourished since plenty of excellent alternatives to ruminant meat exist and are available to citizens in affluent countries, and a growing body of evidence even indicates that all-cause mortality is higher for the increased daily consumption of red meat (Fields et al. 2016; International Agency for Research on Cancer 2017). We argue for taxation since less invasive instruments such as information campaigns, nudging etc. would still pose the problem of meeting the above challenges to motivating individual actors.

It should be noted that there are other ethical principles that could be used to support the idea that taxation could be a way of reducing the climate impact of food production and consumption, e.g. *the polluter pays principle* as suggested by eg. Neumayer (2000), *the ability to pay principle* as suggested by eg. Caney 2010 or *the precautionary principle* (for a detailed discussion on the complexity of this principle, please see Gardiner 2006). Here, however, our main interest is to discuss the extent to which the state can interfere in individual citizen’s food choices, thus focusing on *the harm principle*.

### **Individual Moral Responsibility**

In the debate on individual moral responsibility for causing climate change an influential argument goes that since climate change is caused by so many individuals acting

independently, and since the acts of every individual per se will not cause climate change, individuals cannot be held accountable for reducing climate change. Walther Sinnott-Armstrong argues that: “my individual act is neither necessary nor sufficient for global warming” (Sinnott-Armstrong 2005: 297), going on to argue that, as an individual, therefore, he is not morally obliged to avoid performing such acts. Whether or not he has a steak for dinner will not in itself make any measurable difference to climate change. This, of course, is a consequentialist view: we should act in such a way that the overall consequences of our action engender the greatest good. But if my abstaining from eating a steak has no measurable positive consequences in the form of preventing climate change, then no moral obligation to act in this way follows.

The debate on the individual responsibility for climate change has been extensive (Sandberg 2011, see also Nolt 2011, Hiller 2011, Jamieson 2010, van de Poel et al. 2012). In favour of the existence of such an obligation it has been argued, from a consequentialist perspective, that clinging to climate-debilitating consumption supports a culture where this is acceptable, and the actions of many people sharing this culture *will* have measurable negative consequences: therefore, individual consumers ought not contribute to such a culture. Virtue ethicists, who are concerned with the character traits that determine our actions and consider that our actions should reflect such virtues as compassion and respect, would not agree that the lack of direct consequences of consuming climate-unfriendly food would exempt individuals from acting virtuously. This obligation is personal and exists whether or not others do the same.

Another line of argument states that when assigning moral responsibility for achieving climate friendly food consumption, it is not adequate to consider only two agents; the consumer through the market and the state. Meisch (2013) argues against individuals being responsible for climate change because “individual are only held responsible to the degree that they are able to influence and act intentionally”. “Ought implies Can”, and only institutions can lift the responsibility of reducing the carbon foot print of food production. States, however, do not always produce the best policy solutions, so institutional diversity is necessary to achieve sustainable development. Institutions such as deliberate policy making or commons should be included, he argues. But while such institutions as communal urban gardening could certainly have a role to play in changing consumer preferences, it is difficult to imagine that the turn in consumption habits that will be necessary can be achieved without the state using its legislative powers to make the changes compulsory, or at least economically attractive to all consumers, as would be the case with a climate tax on foods. Especially so because the changes will have to be made within a short period of time due to the seriousness of the situation.

We shall venture no further into the discussion of whether or not individuals as consumers are morally obligated to avoid buying food with a massive climate impact. We do not need to establish whether individuals or local institutions have a responsibility to act to diminish their food-related carbon footprint. Even if individual consumers and institutions do have such a responsibility, it is questionable whether it can be acted upon in an efficient way, as we have argued. For the present purpose, therefore, it suffice to claim that governments, and preferably the international community as well, are the entities who can take efficient steps to counter global warming; therefore they ought to do so. And since imposing a climate tax on food would have the potential to initiate the process of harvesting the excessive reduction potentials in GHG-emissions that lies in the food sector, we would argue that governments, including the Danish one, should impose such a tax.

## Recommendations for a tax on Ruminant Meat as a First Step

As mentioned, this line of argument broadly underlies the Danish Council of Ethics' virtually unanimous recommendation from 2016 for a national tax on the consumption of ruminant meat as a first step to counter GHG emissions from the food sector.

The Council recommended that, ideally, a tax ought to be imposed on every food item according to its climatic impact and, ideally, the system ought to be implemented supranationally, and the Danish government should work to gain support for this in the relevant fora. However, realizing that this will not happen any time soon and that time is of the essence, the Council recommended that Denmark should take the lead and, as a signal that foods' impact on climate change should be addressed, immediately impose a climate tax on the single most climate-debilitating food: red meat from cattle/ruminants.

A number of studies have showed the potential to reduce GHG emissions through various carbon taxes on animal food production. Springmann et al. (2016) found that the global climate change mitigation potential of emissions pricing of food commodities could be substantial. Likewise, García-Muros et al. (2017) found that a high carbon-based food taxation in Spain can achieve a reduction of 7.6% in food sector emissions, and Abadie et al. (2016) found that up to 10% emission reductions could be achieved in Norway when applying a carbon tax on all food items except for poultry, fish, milk, eggs, vegetables and fruits. A Danish study (Edjabou and Smed 2013) found that a carbon tax on food could decrease the carbon footprint from food for an average household by up to 10%–20%. Wirsenius et al. (2011) found that GHG weighted consumption taxes on animal food products in the EU could reduce emissions from EU agriculture by 7%. Nordgren (2012a, 2012b) makes a moral argument in favour of a climate tax on in the first instance the consumption of ruminant meat. Bähr (2014) argues that a EU meat tax is consistent with EU law, and that governments will need to introduce such a tax to adequately address all sectors that give rise to global warming.

A climate tax should be followed by other measures, of course, but a tax on red meat could lead to a number of significant developments: a) it would limit the consumption of beef, thus reducing the emissions from Danish food consumption, b) it would send a clear signal to consumers about the role of food consumption in causing climate change, and pave the way for more wide-reaching taxation on foods in relation to their climatic impact and c) it would give Denmark a credible voice in international negotiations on lowering food-related GHG emissions by setting an example that other nations would hopefully follow (Danish Council of Ethics 2016).

## Challenges to the Recommendations

As put forward by the Council, the proposal to place a climate tax on meat from ruminants turned out to be highly controversial. The debate that followed in the Danish media after the publication of the report and the reactions from both agricultural organizations and different political parties in Denmark showed as much. Here we briefly outline and discuss the main objections to the proposal and conclude that we find them unconvincing.

One line of criticism goes that a tax on consumption would not provide producers with incentives to develop their production to reduce emissions as their products would still be taxed in a bracket equivalent to that of less climate-friendly products. If, instead, the tax was placed on emissions released in the production phase, low-emission production methods would benefit, thus providing the individual producer with incentives to reduce emissions.

However, even though a tax on local production could make domestically produced meat more climate-friendly, imported meat would be exempted from such taxes and would be likely to rapidly outcompete more climate-friendly locally produced meat as it would be cheaper and price is one of the most decisive factors for the typical consumer. Thus meat consumption would remain the same but shift to imported meat – most likely with a higher climatic impact – and no beneficial consequences would be achieved.

We agree that a production tax would be more effective, but only if implemented internationally. As this is not feasible for the foreseeable future, it seems that a local tax on consumption carries more advantages in the short term. If the strategy works and inspires other countries to follow suit, then a production tax, e.g. at EU level, could subsequently replace the local tax, which should be seen as a first step.

It was further pointed out that Denmark has a huge dairy industry with fast rotation of cows. On average a Danish cow has 2.5 calves before being replaced by a new cow. Thus a huge proportion of beef produced in Denmark is closely bound up with dairy production, almost making meat a surplus product from dairy production. Reducing the intake of red meat could actually be seen as less sustainable, therefore, since the meat would go to waste. But it is worth noting that placing a tax on ruminant meat would have the additional advantage of raising the price of dairy products as well, since dairy production would no longer benefit from the sale of surplus meat from milk cows. And again it is important to see the local tax as a first step. In a globalized economy the consequences of acting nationally can be hard to predict and will sometimes lead to production simply moving somewhere else. We, however, maintain that the situation is so dire that some countries must act and inspire others. In the short run, then, initial measures might seem counter-productive, but in the long run they are necessary stepping stones to establishing international systems that can effectively reduce emissions.

Finally, a number of other objections were raised, focusing primarily on either the individual's right to purchase whatever foods s/he wants or on the risk of a social imbalance, as those with the lowest incomes would be hardest hit by the proposal. We believe we have dealt with the first objection in this paper by showing that government intervention in food choices is indeed warranted in light of the grave damage resulting from climate change.

With regard to the social imbalance, this is an unintended effect that is unfortunate but unavoidable. A taxation system inevitably implies that those on higher incomes can simply accept paying more to continue their current consumption patterns, but it should be noted that continuing current consumption patterns will affect the poorest people on the planet most, since they will be harmed most by climate change. So choosing *not* to reduce GHG emissions by the most efficient tool available, that of taxation, will also result in social imbalance—on a global scale.

Further, as we hope to have shown, consuming food with a disproportionately high climatic impact is basically an ethical issue. By raising awareness around the issue of food and climate change, the aim is to create a social atmosphere where eating meat is seen not only as increasingly expensive but also as morally problematic; and where even those with the wherewithal to continue their current consumption patterns would eventually reduce their consumption due to social and ethical considerations.

## Conclusions

We conclude that there is a moral obligation not to cause climate change; as a minimum, this obligation falls to governments, as climate change will cause severe harm to humans on a global



scale. Governments ought to act to reduce GHG emissions by making it mandatory for all citizens to reduce their emissions – especially when this can be done without these individuals sacrificing anything essential. With regard to food-related emissions, from our point of view, a tax on ruminant meat fulfils these criteria and should be implemented as a pragmatic first step towards changing Danish food preferences in a more climate-friendly direction.

Arguably, the premise of this conclusion could be seen as simplistic. There is extensive debate on the concept of doing harm and the kinds of harm that count morally, but as we have tried to show, even a minimal conception would concur that causing severe harm to other moral subjects' fundamental rights or interests is morally wrong; therefore, causing climate change is morally wrong. Admittedly, the issue of whether or not individual humans can rightfully be said to cause climate change is contentious, given that the contribution of each individual action, such as consuming climate-unfriendly foods, does not in itself cause climate change. Seen at the level of national states, however, the impact of collective consumption, even in a small country like Denmark, is sufficiently high to be non-negligible and the moral obligation to reduce emissions whenever possible is difficult to deny.

Implementing a local tax should be seen as a pragmatic first step in an attempt to reduce emissions from food production and consumption. We are fully aware that, in itself, a Danish tax on ruminant meat will not solve the problem of climate change. Denmark is a small country and cannot solve global challenges single-handedly. To be effective, more countries have to impose measures to limit emissions from the food sector. Ideally, this will be one of many initiatives that eventually lead to binding international agreements to impose taxes on all food items according to their emissions.

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