

# MEAT TAX

**SIMON FAIRLIE looks at different ways of taxing meat and concludes that the best way to reduce meat consumption to sustainable levels is to stop using fossil fuels.**

Meat should be taxed to help save the planet,” proclaimed the *Daily Telegraph* just before the Paris climate talks began, and almost every newspaper from the *Mirror* to the *Times* carried a similar headline. They were referring to a report published by the mother of all think tanks, Chatham House, called *Changing Climate Changing Diets: Pathways to Lower Meat Consumption*.

In fact the report devotes barely half a page out of 70 to meat taxes — this was just what much of the media latched onto. Mostly the report is about prospects for persuading the public to reduce meat consumption: it is rich in the jargon of modern propaganda techniques, embracing concepts such as “choice architecture” and “nudge strategy”. The report’s recommendation that “the issue is complex but the message must be simple” is one that has been followed by propagandists throughout history. A simple message about a complex matter is likely to be a wrong message, and this is the case as regards emissions attributable to meat (see box p35).

There is a growing body of research into the impact of meat taxes, much of it coming from Sweden where the concept has made some political headway. Until now nearly all analysts foresee a flat tax on meat, presumably because it is a message which is simple. There are however other ways of taxing meat and it is illuminating to compare them.

## Rationing

Taxes on consumer goods are regressive — that is to say they hurt the poor more than the rich. Rationing would be a much fairer way of reducing meat consumption to sustainable levels. It was the method used during World War II, when there was a shortage. It would also benefit vegans and vegetarians who could either sell their ration or withhold it for ethical reasons.

However there is no shortage of meat today, and the reasons for reducing meat consumption cannot be reduced to an incontestable “simple message”. Introducing meat rationing would be highly unpopular and provoke a massive black market. However meat rationing might one day become appropriate if meat production declined for other reasons.

## Flat Tax on Meat

Slapping a straight tax on meat, similar to that imposed on alcohol and tobacco, seems to be what most meat tax advocates have in mind. However usually they distinguish between different species of animal, with the level of tax calibrated according to their supposed environmental impact. For



Muck spreading on an early 20th century Swedish farm — benign fertility or threat to the climate?

Carl Larsson

example, leading Swedish meat tax analysts, Säll and Gren, propose a 28 per cent tax on beef, a 26 per cent tax on pork and a 40 per cent tax on poultry — figures which reflect the average level of emissions of greenhouse gases, nitrogen and phosphates.<sup>1</sup>

The main problem with this approach is that there are far greater differences between the emissions of different management systems than there are between different species of animal. For instance nitrogen and phosphates are not always pollutants, on the contrary they are essential for food production; they are only pollutants when there is too much of them in one place. This occurs when there is an excessive amount of livestock in one place — what the FAO terms “nutrient loading” as a result of “the urbanisation of livestock”<sup>2</sup> — and because of an overall surplus of manure due to the manufacture of artificial fertilisers from fossil fuels. If artificials didn’t exist, farmers would be desperate for every scrap of animal manure they could get hold of. A cow fed on organic feed whose manure is used to fertilise grain or vegetable production is therefore performing a service, whereas a cow fed on artificially fertilised maize and rye grass whose slurry is spread on pasture in excessive quantities and leaches away into watercourses is causing problems. To tax them both at the same rate is perverse.

There are many other similar examples. A pig fed on food wastes and crop residues has a tiny fraction of the environmental impact of a pig fed on soya and grains. Beef animals born of dairy cows have far lower emissions than those born into beef suckler herds: the dairy cross calf is a byproduct of the milk industry, whereas for every pure bred beef calf, a mother cow has to be maintained for a year.

Not only does it make no sense to tax different management systems at the same rate, it is likely to make standards of livestock management worse. If the cost of meat goes up, many

consumers are likely to seek out the cheapest meat they can find — remember how sales of organic food declined as a result of the economic crisis of 2008-2010. And the cheapest meat (of any given cut) is often that which has been reared using the worst method.

## VAT

Imposing VAT on meat, presumably at the standard rate of 20 percent, would be a flat tax under another name, except in one respect. Small farmers with a relatively low turnover (currently under £82,000 per year) could remain exempt. They could therefore sell their meat direct to the consumer with a 20 per cent advantage over the supermarkets (though they would not be able to claim back VAT on expenses.)

VAT on meat would therefore give a welcome boost to small scale low-input livestock farmers, to farmers' markets and to other forms of local distribution. Insofar as these small farmers are more ecologically benign (as they may well be in respect of inputs of fertiliser and pesticide, and manure accumulation) this will carry some environmental benefits.

On the other hand the industrial sector which is subject to VAT would be facing the same perverse incentives as under a flat tax, and so might shift towards supplying cheaper, less well farmed meat, from bigger, more industrial farms, and perhaps with more of it imported. We might witness an increased divergence between a VAT-exempt local food sector and the industrial food sector, with poor rural consumers having better access to high quality fresh meat than poor urban consumers. It could also lead to veganism and vegetarianism being more widespread in cities than in the countryside — a trend that is already discernible.

The other advantage, from the Government's point of view, is that it is easy to implement, since it requires no assessment of the environmental performance of different kinds of meat, and it could be introduced along with VAT on some other comestibles that are considered unhealthy. It is something that one might expect small farmers to be lobbying for as an alternative to a flat tax.

## Feed Tax

It would be well nigh impossible to devise a system that could successfully determine different levels of tax for different meat products according to the level of environmental impact caused by their manufacture. Any methodology would be too complex and too contentious. However one way to target certain extravagant management systems would be to impose a tax on livestock feedgrains.

Again the easiest way to impose this might be by applying VAT on animal feeds. However a 20 per cent tax on feed grains is unlikely to have much significant effect on the price or consumption of meat — the price of grain doubled after the 2008 economic crisis without any massive effect upon meat prices. Moreover VAT registered farmers would be able to claim the tax back, giving them an advantage over smaller farmers who weren't VAT registered. In other words VAT on animal feeds, counter-intuitively, would disadvantage the smaller livestock farmer — in contrast to VAT on meat.

The alternative would be a flat tax on animal feeds, preferably rather heftier than 20 per cent. This would favour farmers feeding livestock on grass, crop residues, and food waste and disadvantage pig and poultry factory farms. It would result in increased sowing of clover, lucerne and other legumes which would have a benign effect upon the quality of soils.

However a precise definition of what constitutes feedgrains is elusive. Should spoilt and substandard grain which is only fit for animal consumption be taxed? What about soya protein and other feedcakes that are a co-product of vegetable oil production? Why not maize silage which is in some ways more problematic than feeding grain to animals? And what about the feedgrain buffer — the 50 kilos or so of grain per person that it is necessary to grow in the best year to ensure that there is enough food for everyone in the worst year? Do we really want to be taxing that?

## Artificial Fertilisers

Artificial fertilisers are problematic not only because they deplete the soil of organic matter and are currently dependent upon fossil fuels for their manufacture, but also because their ready availability creates a surplus of organic fertility (ie manure) which causes pollution and greenhouse gas emissions.

An effective fossil fuel tax (see below) would rectify these problems. However, in its absence, artificial fertilisers benefit from financial advantages over organic manures, which although not tax-based, have a similar effect. These advantages derive from the fact that the burden of distinguishing between organic agriculture and chemical agriculture falls entirely upon the organic sector who have to pay for the considerable cost of certification and labelling.

Since the excess fertility problem is due to a superabundance of artificial fertilisers, it follows that it is the farmers who use these chemicals who should be held responsible for their licensing and labelling, rather than organic farmers who don't use them. If non-organic food for sale in supermarkets carried labels saying "grown with the use of chemical fertilisers", or pesticides or GM seed, and organically produced food was regarded as conventional, there would be a shift in patterns of consumption that would lead to a reduction in the use of artificial fertilisers and better manure management.<sup>3</sup>

## Carbon tax

Meat would be caught by wide-ranging carbon taxes, should these ever be implemented. A tax on all greenhouse gas emissions would require the almost impossible task of reaching agreement on how great the emissions from livestock and meat actually are. Analysts have settled on figures such as £1.76 per kilo of beef,<sup>4</sup> which mostly appear to be based on the FAO's contentious figure of 14.5 per cent (see box p35). If such a figure was agreed upon for beef, pork, poultry etc, the tax would act exactly as the flat rate described above with all its perversities.

## Fossil Fuel Tax

A ratcheted annual increase in tax on oil and other fossil fuels, including red diesel, would be simpler to apply since there would be no need to assess the emissions of different kinds of meat (in the UK it was applied at a rate of three per cent a year from

# Livestock Emissions: 14.5 Percent Hot Air

In 2006 United Nations Food and Agriculture Organisation FAO issued a press release which stated:

*Which causes more greenhouse gas emissions, rearing cattle or driving cars. Surprise! the livestock sector generates more greenhouse gases than transport.*

The report which the FAO was publicising, *Livestock's Long Shadow*, claimed that 18 per cent of all man made global warming was caused by livestock. The 18 percent figure was repeated uncritically by all sorts of interest groups, until in 2013 the FAO lowered it to 14.5 per cent.<sup>9</sup> This was primarily due to the fact that the FAO had overestimated the amount of deforestation taking place in the Amazon, a matter that *The Land* magazine had pointed out in 2007.<sup>10</sup>

Now it is the figure of 14.5 per cent which is bandied around, and which forms almost the only statistical basis for proposals to tax meat — and it is still used to suggest that livestock generates more greenhouse gases than transport. Thus Damian Carrington, writing in the *Guardian* in 2014 about an earlier report from Chatham House, states:

*The global livestock industry produces more greenhouse gas emissions than all cars, planes, trains and ships combined.*<sup>11</sup>

This is incorrect, because the 14 per cent figure attributable to what Chatham House call “direct emissions from the transport sector” includes only “tailpipe emissions”, ie fuel.<sup>12</sup> All other emissions generated by the transport sector — those relating to the manufacture of vehicles, the building of roads, service stations, harbours and airports, the methane released through oil extraction etc, not to mention the wars fought to secure the oil — are accounted for under different sectors.

## Uncertainty

It is incontestable that the burgeoning numbers of cattle and other livestock in the world have a serious environmental impact in all sorts of ways; but there is no reliable scientific basis for the figure of 14.5 per cent of greenhouse gas emissions which Chatham House, like many other respected organisations, cites without question. Estimates of the contributions of different sectors to global warming remain uncertain, particularly in respect of methane, which is the principal gas emitted by livestock. A 2013 study by 48 climate scientists<sup>13</sup> concludes: “Although most sources and sinks of methane have been identified, their relative contributions to atmospheric methane levels are highly uncertain.” They classify a less than 33 percent difference between studies as a “high level of agreement”.

The FAO figure of 14.5 percent is also misleading because it includes the amount of methane and nitrous oxide emissions currently being emitted by livestock, but does not take into account what emissions of these gases might be released by alternative land uses if we dispensed with domestic livestock. In the case of methane there could be replacement emissions coming from increased numbers of wild animals, termites, rice paddies, wetlands and grass fires (though a widespread programme of biomass crops might help to limit this rebound effect). In the case of nitrous oxide there would be replacement emissions from the green manure or artificial fertilisers necessary to grow the extra grains and vegetables needed to replace the meat and dairy foregone.<sup>14</sup>

## Apples and Pears

A further problem inherent in the FAO statistics, and in any attempt to equate livestock emissions with transport emissions, is that methane emissions from livestock and carbon dioxide emissions from fossil fuels are not directly comparable. The Intergovernmental Panel on Climate Change (IPCC) overcomes this difficulty by imposing a mathematical relationship —



Carl Larsson

currently 1 gram of methane equals 25 grams of CO<sub>2</sub> — but this is an artificial concept based on an arbitrarily chosen discount rate. Methane is a sort of temporarily turbo-charged version of CO<sub>2</sub> — it has higher global warming potential but once in the atmosphere it degrades back into CO<sub>2</sub> much faster than CO<sub>2</sub> disappears from the atmosphere, so the higher you rate methane against CO<sub>2</sub>, the more you value the short term.

Moreover methane emissions from livestock and CO<sub>2</sub> from fossil fuels are qualitatively different because they come from different places. Fossil fuel carbon is released from the reserve of hydrocarbons that have been locked under the earth's crust for millions of years, and is therefore adding to the total pool of carbon circulating within the earth's atmosphere and biosphere. The larger this pool of carbon, the more raw material there is that can potentially be turned into methane. Livestock methane emissions are only temporarily extracted from this pool and do not add to it, just as the CO<sub>2</sub> which livestock exhale does not add to it.

Fossil fuel extraction also causes methane emissions, and when this methane degrades into CO<sub>2</sub> it represents a net addition of carbon into the pool. Fossil-fuel derived methane therefore has a greater and a more permanent impact, weight for weight, than the methane generated by livestock, which doesn't cause a net increase in carbon. Moreover if we stop extracting fossil fuels we can be sure that the methane stays in the ground — whereas if we eliminate livestock, there is no guarantee that whatever takes its place won't generate methane emissions.

## Thirty Percent

Approximately the same amounts of methane are released into the atmosphere by livestock and by fossil fuel extraction every year — estimates for both sources lie around 25 to 35 percent of all human-sourced methane emissions.<sup>15</sup> By a happy coincidence IPCC calculates that a reduction of less than 30 per cent in methane emissions would stabilise methane levels in the atmosphere within two decades<sup>16</sup> — so to stabilise methane concentrations we can either stop using fossil fuels or stop keeping livestock.

There is no question which we should focus on. It would be more reliable to eliminate the methane emissions caused by fossil fuel extraction since this methane would stay safely underground. We have to stop using fossil fuels anyway because they cause about 70 percent of all greenhouse gas emissions. And when we do stop using fossil fuels, livestock numbers will almost certainly go down of their own accord (see main article). In short, fossil fuels are the root of the problem, and focussing attention on livestock emissions is at best a short term measure, and more likely to be an unhelpful diversion.

REFERENCES ON P 37



Carl Larsson's watercolours of a Swedish farm are from his book called *A Farm*. You can see more of them, in colour, at the Salt of the Earth Farm website, <http://saltofkingston.com/category/farm-musings/>

1993-1999). To achieve climate targets, we have to stop using fossil fuels, so a fiscal measure of some kind (with compensatory measures for poor countries) is necessary anyway.

Advocates of a meat tax argue that such a tax won't do the job because it only targets the 75 per cent of global warming due to fossil fuels, while the 25 per cent due to agriculture and land use change remains untaxed. The Swedish Food and Environment Network takes the argument further by looking at what we could be doing with agricultural land instead:

"Today grasslands and embankments are cultivated to feed cattle throughout Sweden, but these areas could be used for creating biogas and fertilisers. This means we have the opportunity to produce a lot of bio-energy if we reduce pure reliance upon animals. This could be vital in making Sweden less dependent upon fossil fuels in the long run."<sup>5</sup>

They no doubt have in mind a 2011 University of Gothenburg research paper<sup>6</sup> which estimated that a flat tax of 60 euros per tonne of CO<sub>2</sub> equivalent on meat and dairy would reduce Europe's agricultural emissions by just seven percent; but if the land made available were used for bioenergy production, the decrease in emissions could be six times greater. Incidentally, this is similar to the scenario envisaged by the Centre for Alternative Technology in their report *Zero Carbon Britain*.<sup>7</sup>

However it is precisely this ability to convert grazing land to biomass production which suggests that if you have an effective fossil fuel tax you may not need a meat tax at all. If bio-energy really is vital in making us less dependent upon fossil fuels, then as taxes on fossil fuels increase, energy will become more expensive and there will be increasing market pressure for former grazing land to be used for woodland, coppice and other bioenergy crops, which will result in a reduction of ruminant grazing anyway. Meanwhile as fossil fuel scarcity makes artificial fertilisers more expensive, there is also likely to be a reduction in the amount of grain available for animal feed. An effective reduction in the use of fossil fuels would therefore result in a decline in livestock numbers and meat consumption.<sup>8</sup>

On the other hand, if artificial fertilisers become scarce and expensive, there will be a greater need for organic fertility to grow food, and the best source for this is grass and legumes, not the woody and fibrous crops that supply energy most efficiently. Grass in outlying areas can be harvested, digested

and transported to arable land free of charge by ruminants, who also have the added bonus of providing meat.

Which of these two requirements, biomass for heat or fertility for food, will be the more pressing in a world without fossil fuels? One can only guess that it will be a bit of both. Putting aside other matters which might need to be regulated (such as the power of corporations and wealthy people to act outside the public interest, the safeguarding of biodiversity etc), the best way to decide how much of our non-arable land should be devoted to energy and trees and how much to fertility and ruminants might be to leave it to the market. People and communities will decide with their purse which one they need most. Taxing one to favour the other would alter the balance and perhaps give a wrong answer.

## Conclusion

To reduce greenhouse gas emissions to a sustainable level, there has to be a tax or some other mechanism that reduces fossil fuel consumption to a tiny fraction of present levels. It is likely that as this happens, the diminished availability of artificial fertilisers and competition for grazing land from energy crops will lead to a reduction in livestock numbers, without any need for a targeted meat tax.

There is however an argument that it will take some time to reduce fossil fuel emissions to negligible proportions, and in the interim considerable reductions in emissions can be achieved by reducing meat consumption. This argument is reinforced by the fact that reductions in methane emissions have a more immediate effect upon the greenhouse gas emissions, whereas the effect of reductions in CO<sub>2</sub> are more long term.

There is some strength in this argument, but there is also the danger that focussing on the relatively small proportion of emissions attributable to meat because it is "low hanging fruit" will eclipse the more fundamental matter of dealing with the 70 per cent attributable to fossil fuels. That seems to be the intent behind the "cows cause more emissions than cars" rhetoric.

If a meat tax does gain acceptance as a preliminary to an effective mechanism to reduce fossil fuel consumption, then it is important to ensure that it favours forms of agricultural and livestock management compatible with a low carbon society. An intensive system which produces fewer methane emissions because of its reliance on artificial fertilisers and feed grains, is not going to be of great help if, in a low carbon future, artificial fertilisers and energy become scarce, while methane ceases to be a major problem.

If a robust fossil fuel tax is not immediately achievable, then of the fiscal mechanisms examined above, perhaps the most promising is VAT on meat. It is easily introduced, because the public are used to VAT on luxury items; and the advantages it gives to small farmers and local foods may help steer us away from the industrial megafarm model reliant upon cheap fossil fuels. A licencing system that placed the burden of certification and labelling upon chemical farmers will also take us in the right direction. But ultimately we need to stop using fossil fuels, and when we do livestock numbers will decline and stabilise at a sustainable level of their own accord.