The Displacement Fallacy

Promoters of biofuels and of carbon offset schemes both rely on the same flawed premise. They assume that supplying an alternative to a source of greenhouse gases (GHGs) will somehow prevent the activity causing the GHG emissions. The UK's Department for Transport (DfT), for example, claims that compelling the country's motorists to burn (approximately) one million tonnes per annum of carbon in the form of biofuels under its Renewable Transport Fuel Obligation (RTFO), will result in one million tonnes less carbon reaching the atmosphere each year.[1] This is not the case.

The problem is that, whilst the RTFO may ensure that motorists burn one million tonnes of biofuel carbon a year, at great cost to the environment and to food supplies, it will not ensure that motorists burn one million tonnes less carbon in petrol or diesel. There is no reason to suppose the biofuel will "displace" oil-based fuels and every reason to suppose that it won't.

The price of oil is determined by supply and demand in a global market-place. The greater the supply, the lower the price. The lower the price, the more people will buy. Conversely, the greater the demand for fuel – that is, the more people want to buy – the higher the price. A balance is reached. The price at any given time is that at which the amount people will buy matches the supply.

If we add one million tonnes of biofuel to the fuel supply each year we will free up one million tonnes of the current supply of oil-based fuels. This will cause the price to fall. More people will want to buy petrol or diesel at this lower price, so demand will rise to compensate for the increased supply.

In practice the effect is global. The price of oil and oil-based fuels around the world will adjust continuously as biofuel is added to the fuel supply. Consumers in the UK and in other countries around the world will buy more petrol and diesel. People will simply drive more.

A similar argument applies to schemes to "offset" carbon emissions. I read recently about one such scheme, to subsidise a wind-farm in China under the Clean Development Mechanism of the Kyoto Protocol.[2] Now, paying for a wind-farm in China is not a bad thing in itself, but it is impossible to claim that doing so "offsets" a specific amount of carbon emissions elsewhere in the world. It may be that China is unable to build coal-fired power stations fast enough to meet the demand for electricity. The wind-farm may therefore simply be generating electricity that would not have been produced otherwise, and is not "offsetting" carbon emissions at all.

Depending on market conditions, adding one million tonnes of biofuel carbon to the UK road fuel supply will not "deliver carbon savings of approximately one million tonnes per annum"[3]. The saving will be somewhere between zero and one million tonnes. In general, a fair assumption might be to halve the expected carbon saving. But, at present the world is developing rapidly and there are fuel shortages in many countries. The main limitation on oil consumption is how quickly we can get it out of the ground – there is very little surplus production capacity. Under present conditions it is reasonable to assume that the UK's RTFO will "displace" only a small proportion of the one million tonnes of carbon claimed by the DfT.

[1] "Consultation on the Draft Renewable Transport Fuel Obligations Order 2007", Dept. for Transport, February 2007.
[2] "Clean Power That Reaps a Whirlwind", The New York Times, 9th May 2007, accessed online on 15/5/07.
[3] "Consultation on the Draft Renewable Transport Fuel Obligations Order 2007", Dept. of Transport, February 2007, paragraph 1, p.4.

