Biofuels

Fossil fuel reserves are being depleted. Volatile oil prices are wreaking economic havoc worldwide. Oil rents are supporting dictators, and fuelling conflicts. And carbon emissions from the use of fossil fuels represent one of the biggest threats to future welfare. In light of these concerns it is perfectly sensible to reduce our addiction to fossil fuels, and to diversify our energy portfolio by promoting the use of renewable energy sources. One such energy source is biofuels. The European Union has decided that in 2020 no less than 10% of the fuel used in the transport sector should be derived from biomass.

I was asked to reflect, as part of a multidisciplinary team, on the implications of this initiative. This seemed like an easy job. Who could oppose something as sophisticated and ecologically friendly as closing the carbon cycle? Growing energy crops would help farmers worldwide, rather than support bearded sheiks in the Middle East. I felt all warm inside just thinking about it.

My ignorance of these matters very quickly became painfully clear. Biofuels as a means to mitigate price volatility on energy markets? One team member shook his head in disbelief. Biofuels as a clever means to mitigate the greenhouse effect? Several team members could not contain themselves, and started to laugh. Biofuels as a development strategy? At this point one team member almost fell on the floor.

Confused, I looked at the statistics. The first shock was that biofuels will probably do next to nothing to reduce the greenhouse effect. When grown on existing agricultural land, the net carbon balance will likely be negative (which is good). But the picture changes when we take into account that some of the biofuels will be grown on land freshly cleared for that purpose. Clearing forests releases so much carbon that it takes many decades for the biofuels system to 'break even'. Some quick and dirty calculations suggest that mandatory fuel mixing policies will result in a *worsening* of carbon emissions if more than one third of the land used for growing energy crops is derived from natural ecosystems. Since the EU will have to import a lot of its biofuels, this seems the most likely scenario.

Even if we ignore the carbon released when land is cleared for agriculture, it appears that growing biofuels in the EU and US is a very clumsy way to rescue the climate. Calculations by the Organization for Economic Co-operation and Development (OECD) suggest that, per tonne of carbon emissions avoided, biofuels may be 40–100 times more expensive than alternative options. And a mandatory mixing policy will do little to stabilize food markets either. Various studies suggest that policy-induced demand for energy crops will push up food prices by some 20–30% (either because crops are used as an energy source, or because land is used for growing energy crops rather than food), even during price peaks when it will further aggravate price spikes such as the one we experienced in summer 2008. It will force extra consumption of agricultural output, even if food prices are already high.

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Last, but certainly not least, how will promoting biofuels affect the development prospects and poverty alleviation strategies of developing countries? This is a complex issue. It seems likely that higher food prices will adversely affect the food security situation of 'net purchasers of food' – be it at the country, regional or household level. However, energy crops and higher prices for food crops also carry the promise of agricultural intensification and rural development. As always, the devil is in the detail, and much will depend on the organization of commodity chains. Do they offer opportunities for smallholders to expand their portfolio so that the outcome is a 'landscape mosaic' of small-scale production? Or will they result in capital-intensive plantation cropping, social exclusion and enclave economies? At this point it is hard to make any firm predictions.

Modest ambitions with mandatory fuel mixing are popular because they imply 'business as usual' for oil companies, car manufacturers and other firms that carry weight in political circles. But there is no guarantee that such policies will contribute much to solving any of the challenges now facing society. ■

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