FOOD ETHICS COUNCIL

Forecasting the perfect storm

The economics of resource scarcity

A report of the Business Forum meeting on 16th November 2011

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About the Business Forum

Ethical questions around climate change, obesity and new technologies are becoming core concerns for food businesses. The Business Forum is a seminar series intended to help senior executives gain learn about these issues. Membership is by invitation only and numbers are strictly limited.

The Business Forum meets six times a year for in-depth discussion over an early dinner at a London restaurant.

To read reports of previous meetings, visit foodethicscouncil.org/businessforum.

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Introduction

The food and farming sectors are more aware than most that natural resources are under pressure. Agriculture and fisheries depend directly not only on energy generation, like many other industries, but also on the climate, fresh water availability, soils and biodiversity. What's more, we have heard a crescendo of warnings, most recently from Foresight, that the sector faces a 'perfect storm' of resource constraints and other challenges.

Yet only in a few cases – oil, soils and water – is scarcity already directly affecting UK businesses and consumers. The warnings come less from immediate experience, than from economic and environmental models. While most of the modellers agree we face a problem – a big one – their prognoses and recommendations vary. Issues include how sharply the availability of key resources will peak, how much the 'rebound effect' will see us erode efficiency savings through increased consumption, and how far it makes sense to talk of resource 'limits'.

The November 2011 meeting of the FEC Business Forum provided a primer on resource economics. We are very grateful to our speaker, Paul Ekins, Professor of Energy and Environment Policy at University College London. The meeting was chaired by David Croft, Director of Food Technology at Waitrose and a member of the Food Ethics Council.

This report outlines points raised during the meeting. Contributions are not attributed. The report was prepared by Tom MacMillan. It does not represent the views of the FEC, the Business Forum or their members.

Key points

- The **biosphere** provides humanity with **functions** including resources, a sink for waste and life support systems.
- The rules and conventions that govern economic activity have not been designed to **protect** these functions.
- **Ecological economics** seeks to correct that, treating the economy as a sub-system of the biosphere and seeking to define humanity's 'safe operating space'.
- A key debate in environmental and ecological economics is whether growth in GDP can be **decoupled** from physical growth in the amount of matter and energy mobilised in the economy.
- For example, GDP growth has been decoupled from sulphur emissions, yet not from greenhouse gas emissions, where apparent UK reductions actually arise from **off-shoring**.
- **Policies to promote decoupling** include pricing resources, green tech investment and promoting sustainable behaviour.
- While green **investments** of 1-4% of GDP could address climate change, the Green Fiscal Commission found that even cost-neutral **tax** changes could be a big help.
- However, pressure from the public and parts of industry against measures to limit resource-intensive consumption saps the **political will** of governments to act.
- In turn, **fast investment** practices encourage short-termism in business.
- Reforms to **financial regulation** might help address this and would chime with the welfare-focused economic policy priorities set out by green economists who are sceptical that decoupling is possible in practice.

Ecological economics

The biosphere provides certain functions to humanity, including resources for the economy, a sink for waste, life support systems, and human health and welfare. These are functions that we need and value, yet they are in crisis.

The weight of scientific evidence suggest that, over the next 20 to 40 years, we face a set of profound and mutually reinforcing pressures on the capacity of ecosystems to provide these functions. The Millennium and National Ecosystem Assessments, and success international reports on climate change, are among countless statements of broad scientific consensus on the severity and urgency of these threats. The recent Foresight report on Global Food and Farming Futures explores their implications for the food sector.[1]

One reason for this plight is that the rules and conventions that govern economic activity have not been established to protect and develop these ecosystem functions. Indeed, by and large, the study of economics has paid them little attention. Few economics graduates at HM Treasury, for example, are likely to have spent more than a few days learning about these aspects of the economy during their years of training.

Ecological economics adopts a different approach, taking these ecosystem functions as its starting point and treating the economy as a sub-system of the biosphere. This means respecting principles of sustainability that help to ensure economic activity preserves the ecosystem functions on which humanity depends. These principles include:

- Not exceeding critical loads for ecosystems.
- Preventing global warming and ozone depletion.
- Renewing renewable resources.
- Using non-renewables prudently.
- Maintaining biodiversity.
- Applying the precautionary principle.
- Respecting standards for human health.
- Conserving landscape and amenity.

Such principles are sometimes expressed as respecting 'environmental limits'. Instead of being taken to mean that resources will run out, it makes more sense to think of 'environmental limits' in terms of a safe operating space for humanity. After all, we know that what counts as a resource depends on the economic and social circumstances – fossil fuels were not a major resource until the industrial revolution, while now we find ourselves surrounded by renewable energy, without sufficient ways of putting it to economic use. An influential paper in the journal Nature, in 2009, argued that we have already exceeded humanity's safe operating space in the areas of nitrogen cycling, climate change and biodiversity loss.[2]

Decoupling

How big can the economy get without exceeding that safe operating space? Indeed, if we are already exceeding it, how much does it need to shrink? While some economists have been asking this since the 1970s, we don't seem to have made much progress towards agreeing an answer.

[1] http://bit.ly/tn0Pf8

[2] http://bit.ly/tf9vRG

Efforts to address this question are frustrated by confusion about three different aspects of economic growth:

- Physical growth in the amount of matter and energy mobilised in the economy. Indefinite physical growth is impossible in a finite system subject to the laws of thermodynamics.
- GDP growth – growth in money flows, incomes, values and expenditure, on which there is no theoretical limit.
- Growth in human welfare, which depends on sustaining environmental functions and has a complex relationship with GDP growth. While the evidence shows that many other factors contribute to national welfare, it is hard to argue that, other things being equal, more money is not better than less.

If we want the money economy to grow within environmental limits, then we need to decouple GDP growth from physical growth in the economy. Whether this is possible in practice is hotly debated within environmental and ecological economics. Some apparent cases of decoupling at a national scale, for example reducing greenhouse gas (GHG) emissions in spite of economic growth, are actually a consequence of off-shoring polluting activities rather than eliminating them. In his book Prosperity without Growth, Professor Tim Jackson suggests that such evidence casts doubt over whether absolute decoupling is possible, arguing that policy-makers should instead focus on increasing human welfare in ways that do not depend on GDP growth.

Critics of this view counter that there are genuine examples of absolute decoupling. For example, the link between sulphur emissions and energy supply has been broken by flue gas desulphurization technology in power stations and the shift from coal to natural gas. From this perspective, the reason we haven't seen the same happen with GHG emissions is that we haven't tried hard enough – decoupling is a challenge of political will, not practical possibility.

That other factors besides GDP, notably greater economic equality, can benefit human welfare is not in dispute. The main policy differences arise over the appropriateness of GDP growth as an objective, and the relative importance of investing in green technology versus restructuring towards an economy that distributes wealth more efficiently. There are close parallels to these competing priorities within current debates about food security, in calls for 'sustainable intensification' and 'agro-ecology' respectively.

Policy options

Those who argue that decoupling is possible propose three types of policies to achieve it:

- Increase the prices of resources that we want to conserve. A lot of effort is now devoted to valuing ecosystem functions in money terms, more or less credibly.
- Stimulate environmentally efficient technologies.
- Nudge or shove people towards less environmentally destructive behaviours.

These options were set out in the Stern Review, which aimed to compare the future costs of action and inaction to tackle climate change. Stern estimated that tackling climate change would cost 1% of GDP. Other estimates suggest the cost could be up to 4% of GDP. Even then, absorbing this cost would only mean reaching projected GDP for 2050 a couple of years later, which seems a small price to pay for a more stable climate.

In any case, as a new report for UNEP highlights, the base-line GDP projections used in such projections are wholly implausible, because they ignore the likely negative effects of environmental change on the economy in real 'business as usual' scenarios.[3]

The estimated costs of tackling climate change and other major environmental problems are relatively low because many are actually investments, while others are cost-neutral. Even greener technologies that are currently more expensive are often only marginally so. Moreover, if resources become valued more highly, the elasticities around their use may increase.

The Green Fiscal Commission found that government could achieve a great deal simply by gathering a greater share of its current revenue through green taxes. It examined what it would mean to double the proportion of green taxes from their current 7%. As their model was revenue-neutral, this created opportunities to lower duties elsewhere, for example in employers' National Insurance. They concluded that this could be a powerful stimulus to decoupling and the effect on the economy would be almost entirely positive.

One reason that fiscal measures attract such attention from economists working in this field, besides their amenity to modeling and the practical appeal of achieving progress simply by reconfiguring existing costs and incentives, is that, without them, efficiency gains can be undercut by the 'rebound effect'. This is where people use more of something – for example getting a bigger car or fridge – because greater efficiency means it is costing them less. Backing up efficiency gains with price increases helps to ensure that the resource saving sticks.

Across the economy as a whole, priorities for policy intervention include energy use in industry, transport and the home, and water use. In the food sector they include waste reduction, increased production efficiency and promoting more sustainable diets. That policy commitments towards first generation biofuels have exacerbated global food insecurity demonstrates the danger that measures can have unintended consequences, and the need to proceed with due caution, if also with urgency.

Political will

The current political reality is that any measures that would slow short-term growth are unlikely to appeal to government. Yet a reluctance to advance well thought through green measures has marked not only the past few years of economic gloom, but also the political good times. Why is it proving so hard to put even well-understood policy measures into practice?

Current calls to scrap planned increases in fuel duty illustrate the challenge. Were the chancellor of the exchequer to do so in the present economic climate, he would raise the revenue from elsewhere. So the issue is not really about how much money the government receives, but about who pays and for what. Yet any measure that constrains energy-intensive forms of consumption is a touch-paper for public and political controversy, sometimes fanned by commercial vested interests.

An example in the food sector is the persistent failure of governments to address overfishing. The steps required are comparatively clear and their benefits all too apparent. Yet politicians have felt their

[3] http://bit.ly/uAH2cB (figure 9)

mandate from the public or industry too fragile to act.

This persistent political inaction in situations of ecological crisis invites parallels with the current challenges facing Euro zone governments. Does the failure of elected governments to push through environmental austerity measures, such as consuming less fuel and fish, justify more technocratic political models? Or does it reflect public scepticism that 'we are all in this together'? Just as financial industry bonuses and revolving doors undermine the public mandate for economic austerity measures, so does governments mandate for measures to promote sustainable consumption depend on high environmental standards in public procurement and industry. The resounding message from consumer research for the Sustainable Consumption Roundtable was 'we will if you will'.[4]

Of course, amid this gloom there are encouraging examples. The recent vote by the Australian senate to tax carbon emissions demonstrated strong political will. While similar taxes already exist in Europe, the political stakes in Australia have been especially high. The decision underlines the message that climate change is a major and economically important global issue.

In the UK, the focus on climate change is shifting increasingly towards adaptation. This could be seen as a concession to failure or a distraction from efforts to mitigate GHG emissions. However, it could plausibly achieve the opposite. As government, the public and businesses grapple with the concrete challenge of preparing for an average 4˚C rise in temperature, which could see summer days 10˚C hotter, the benefits of mitigation may become more starkly obvious.

Commercial pressures

Where does the weak public mandate for green measures felt by politicians leave businesses, including in the food sector? One consequence is that government looks increasing to industry to take voluntary action. This can succeed where there is strong business case, for example in increasing resource use efficiency, and government can enable industry to act by providing information, advice, loans and opportunities for collaboration.

However, voluntary agreements struggle to help address the real policy gaps, which are in measures that reduce resource-intensive forms of consumption. Just as politicians find it difficult to win support for such measures from voters, so companies with their customers. If business try to address this collaboratively, by agreeing to raise prices to cover the environmental costs of production or to take the least sustainable products off the shelves, then they are likely to breach competition law.[5] These tensions, and the vulnerability of voluntary agreements to free riders, mean that many see greater government regulation and enforcement as essential to achieving a level playing field.

Sustainability initiatives in the food sector face additional challenges because of the structure of the supply chain, in which a small number of large retailers act as gatekeepers to most of the consumer market. Those in this chain with the least bargaining power – farmers, manufacturers and, ultimately, their workers – can end up carrying a disproportionate share of the cost

[4] http://bit.ly/unPM3o

[5] http://bit.ly/sUvTDo

of green investment, while seeing least of the economic benefit.

The trend towards sustainable sourcing may slowly be changing that picture, as manufacturers and retailers see that the security and affordability of high-quality supplies depends on investing in the communities from which they source. For example, businesses may invest in development initiatives that encourage rural employment in regions where the farming workforce is shrinking, or in stewardship initiatives to conserve water across a catchment. Yet the intrinsic flexibility of supermarkets stocking thousands of lines, compared with manufacturers making a handful of products, means that most retailers still feel this pressure only weakly. Even in manufacturing, the trend is only pronounced in supply chains for a few commodities, notably cocoa, that are in or near crisis.

Too slow or too fast?

We tend to think of climate change and other environmental threats as looming over us in the long term. Yet the 'perfect storm' John Beddington forecasts may reach us soon, certainly within the careers of many food business executives. For the billion people world-wide experiencing hunger, it is already here.

So meeting these challenges is intensely urgent. Politicians, businesses and the public need to act quickly. Yet, some would argue, we need to slow down to achieve that.

Among them are environmentalists who question the priority placed on GDP growth and the plausibility of absolute decoupling. Their recipe for increasing human welfare and prosperity without growing GDP calls for a shorter working week and a coordinated slowdown in economic activity known as 'degrowth' or 'décroissance'. The ambition is to step society off its consumerist treadmill.

While the solutions they advocate may be different, this sense that we need to slow down will chime with many people working in the food sector. Increasingly, the sector has become characterised by 'fast companies' trying to deliver fast returns to fast CEOs, often in post for just a handful of years. Behind this trend is a financialisation of the food sector, which has seen the average duration of share ownership compress from years to hours. Executives seeking to build a sustainable business and make rational long-term decisions are forced to swim against of tide of short-termism. Only a few, such as Unilever CEO Paul Polman, have taken an explicit public stand against this.

So businesses face their own challenges, alongside politicians and the public, in mustering the will and mandate to act more sustainably. One way for businesses to increase their own room for manoeuvre is to work with environment and development groups in support of regulatory reform in the financial sector. Now may be a timely opportunity foster longer-term investment practices, strengthen the business case for sustainable supply chains, and help reach a tipping point in environmental politics.

Speaker biographies

David Croft is Director of Food Technology at Waitrose. David previously worked for Kraft Foods, Cadbury and the Co-operative Group, where his senior roles have included leading technical and marketing functions in environmental sustainability, ethical sourcing and retail standards. David also previously served as a director of the Ethical Trading Initiative, and as a council member at the Campden & Chorleywood Food Research Association. He has also contributed significantly to the development of the UK fair trade market, launching new products and ranges, and by developing consumer awareness and marketing campaigns. He has been involved in numerous initiatives to improve supply chain standards across the food sector, engaging extensively with government departments and NGOs. He is a member of the Food Ethics Council.

Paul Ekins is Professor of Energy and Environment Policy at the UCL Energy Institute, University College London. He is also a Co-Director of the UK Energy Research Centre, in charge of its Energy Systems theme, and also leads UCL's involvement in large research consortia on Bioenergy and Hydrogen. His academic work focuses on the conditions and policies for achieving an environmentally sustainable economy, with a special focus on energy and climate policy, and the modelling of the energy system; on innovation; on the role of economic instruments such as environmental taxes; on sustainability assessment; and on environment and trade. Recent current work in the energy and buildings area includes the ongoing EPSRC/EDF project 'People, Energy and Buildings' and membership of the Steering Panel of the DECC-financed scoping study of the new National Housing Model. He is also a member of DECC's Household Energy Management Advisory Panel. He is the author of numerous books, papers and articles including Economic Growth and Environmental Sustainability: the Prospects for Green Growth (Routledge, London, 2000), and is co-editor of the book Understanding the Costs of Environmental Regulation in Europe (Edward Elgar, Cheltenham, 2009).

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