



Innovation: The Environment

Carbon reduction

Commentary

Scientists tell us that to combat global warming the amount of carbon emitted into the atmosphere needs to be reduced. In this film we explore the economics of lowering carbon emissions and how Britain is tackling this problem.

Helm

There are two ways that you can reduce the production of carbon in a country like say Britain. One way is to genuinely reduce it, to switch from coal to gas, to build renewable and so on. But another way you can achieve the target is simply to stop doing energy and carbon intensive things, and instead of producing those goods domestically, get them produced somewhere else that doesn't have a target like say China, and then re-import things back into the country.

In Britain we reduced our emissions by over 15% from 1990 to 2005, but when you add back the imports of the goods which we would have produced here, and we used to produce here in Britain but are now produced in China, say steel, shipbuilding, cars to an extent, cement, chemicals etcetera, we find that our actual consumption of carbon, that's what we produce plus what we import, between 1990 and 2005 went up by over 19%. In other words we basically met a target, a production target by de-industrialising.

The net effect on global warming is probably worse than we hadn't have done it at all. Why? Because the carbon intensity of production in a country like China is probably higher per unit of output than in the UK and of course shipping and transport introduces a whole new dimension. So if you're really interested in dealing with global warming and climate change, as opposed to just focussing on what happens in a particular country, it's carbon consumption that matters not carbon production. That means that we, Britain and indeed Europe plus the United States is 50% of world GDP, are doing most of the consuming of carbon in the world and we should pay for it.

Commentary

To make us pay for it, governments need to impose a price on carbon to make carbon-intensive goods less profitable and more expensive. To do this, governments can set a limit to the total quantity of carbon emissions each year, and then issue firms with tradeable permits to emit up to that limit, or they can impose a tax on carbon emissions.

Helm

The choice between using taxes, carbon taxes and using permits or quantities like the European Emissions Trading scheme, is in theory a well researched Marty Weitzman in particular has set out a framework where what you think about is what you're uncertain about, what's the most risky thing about the particular kind of externality or pollution that you're looking at

If we emit another tonne of carbon into the atmosphere, it will actually make virtually no difference. You have to emit a lot before you make much damage. But if we try to reduce the emissions of carbon by a tonne now, as opposed to in a year or two years time when the capital stock changes etcetera, then the cost might be very high. So if you're more worried about the costs being much higher than you thought they were going to be, rather than the quantity then you go down the tax route rather than the permits. It's pretty clear that unless there's going to be catastrophic climate change, in theory within this kind of Weitzman framework, you would prefer taxes to permits and quantities. And what the tax does, is it creates a price and the advantage of a tax is that we can set the price now for some considerable period into the future.

Hepburn

In the choice between carbon taxes and carbon trading schemes, carbon taxes are actually more efficient way of dealing with the problem and that's a fairly, fairly robust conclusion from the economics of instrument choice choosing between taxes and trading schemes.

Goodwill

If we were able to put in place a high carbon tax of let us say 200 dollars per tonne of carbon dioxide, right at the top end of the range that people are talking about. There's no doubt in my mind that we would be able to de-carbonise the western economy, that is to say the industrial world economy within a space of 10, 15, 20 years. Completely de-carbonise it.

Commentary

However, the European Union has chosen a permit system, the European Emissions Trading System rather than a tax.

Helm

Now why did we end up with a permit system when a tax system is arguably much better? The answer to that is almost entirely in terms of thinking about economic rents, about rent capture, about lobbying and about industry's pursuit of its interests.

Hepburn

Probably the most important thing from a practical point of view is the political feasibility of the policy and carbon trading has so far been more successful in getting the buy-in of politicians and the business community and even the environmental community. And the reasons for that is that trade, cap and trade puts a firm limit on your emissions and that's what environmentalists like about it, they know that, you know, there's no uncertainty about whether we're going to go over the cap or under the cap, there's just a cap. What business like about it is that it's more easy to allocate some of the permits to businesses for free. Now, from an environmentalist or a social equity point of view, that may not be the smartest thing to do, because it can generate windfall profits for industry, but from the industry's point of view, this is very appealing, obviously, and so they're actually lobby quite hard for carbon trading and are happy to buy into it. And from politicians' point of view, the trading scheme, you know, allows them to satisfy these two different constituencies and send a set of messages to their publics about them being tough on greenhouse gases.

Hepburn

I think we are moving into a different era now though, in 2010. We have just had a financial crisis and governments around the world are looking for ways to deal with the debt they've taken on and to balance their budgets, and that context, raising revenue from environmental issues like climate change, is very politically appealing.

Goodwill

The question is whether the world is prepared to pay the price.

It has very big distributional effects between countries and between different classes in countries. So in this country for example, a high carbon tax could be used to de-carbonise the economy quickly but the cost would be born essentially by, would be born disproportionately by poorer people. So there'd need to be a massive change in the tax system to compensate for that. Those things make the introduction of a carbon tax very difficult to envisage in a democratic society. Too costly, too difficult, too many distributional implications across society.