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Environmental Economics and Politics

Online student resources

■ Additional materials

■ Market failure

Defined as a situation where a market is not creating efficient outcomes, there are in fact several different kinds of market failure. The first category is comprised of externalities, which occur when a transaction between two parties has a significant impact on a third party lacking any direct involvement in the original deal. A prime example is a firm generating pollution when it manufactures goods on behalf of its customers. One example from October 2010 occurred when sludge from an alumina plant located in Western Hungary broke out of its containment and flooded through the local region, killing three and injuring 120. Insofar as the residents suffered from the pollution without benefiting from the good's production as either employees or consumers, the market can be said to have failed them. Moreover, even if they had benefited from its production, it is clear that their wage remuneration in no way compensated for the harm caused by the spillage.

Market failure can also lead to positive externalities for third parties. For instance, when an employer hires graduates of a state school system but pays them far less than the benefits it derives from having such well-trained staff members, they receive undue advantages referred to as a 'free ride'. Education can be analysed as a state investment whose benefits, in this instance, have accrued to private parties, i.e. future employers, who have not earned the benefit in the sense that they did not contribute to the cost of graduates' schooling. This too is unfair and therefore inefficient.

Another case of market failure is 'public goods', defined as items that are 'non-exclusive' (benefiting even those parties who have not paid for them) and 'non-rivalrous' (some parties' consumption does not prevent others from consuming the goods as well). An example here is street lighting. Once such installations

have been set up, everyone can use them, and their use by one party does not prevent another from doing the same. It is very hard for private parties to make profits running streetlights since there is no pricing mechanism that rewards them satisfactorily for consumers' use of their good. Yet streetlights are necessary to society, if only because they support other productive activities. This is another situation where the market system fails, and often one that will be funded by governments redistributing tax revenues.

A third category of market failure is the imperfect distribution of information between participants to a transaction, creating situations where one party can take advantage of the other and be rewarded without providing commensurate value in the exchange. A recent example of this is provided by the investment products whose disintegration sparked the 2008 credit crunch. These instruments were sufficiently complicated (based on generally undisclosed assumptions about financial market correlations) for many buyers to have misunderstood the nature of the risks they were assuming. The subsequent meltdown in the assets' value, after financial institutions had already received large sums upfront for selling them, led to a massive transfer of wealth to one small sector of the economy (banks) to the detriment of all others (investors in general). The market failure was patent, given that the original transactions had been between private parties operating without effective supervision. Normally, it is only through strong government regulatory systems that these kinds of dysfunctions can be minimized.

A final category of market failure occurs when one (or a few) participant(s) in a marketplace accumulate disproportionate power, preventing normal supply and demand mechanisms from determining fair prices. In situations where there is a single seller ('monopoly') or buyer ('monopsony'), or else a cartel of sellers ('oligopolies') or buyers ('oligopsonies'), market participants who are not members of one of these groups will not be given a fair chance to influence outcomes. A prime example is the OPEC oil cartel, which can decide its oil production quantities for strategic reasons that have nothing to do with market forces. A not dissimilar example is the power that Russia has over the European energy markets due to its large gas reserves. Russia may not have a monopoly but it is in a position to impose its pricing policies more or less irrespective of consumer behaviour. This is due to the lack of substitute products and comprises one reason why so many EU governments are looking to build an infrastructure in home grown renewable energies. In terms of government policy, many countries have competition authorities whose purpose is specifically to prevent the kind of market failure that is caused by inadequate competition. In Adam Smith's market theory, competition is considered absolutely crucial to a market finding its equilibrium price (i.e. the level where prices constitute accurate indicators of value) – a precondition for the optimal allocation of resources. Conversely, where market prices are inaccurate due to some participants' power strategies, business decisions will be irrational

(people will consume too much or produce too much) and the economy will suffer from dis-equilibrium. This is the very opposite of market efficiency.

Sitkin, A. and Bowen, N. (2010), *International Business: Challenges and Choices*, Oxford University Press

■ Carbon cap-and-trade

The starting point for this discussion is the requirement that global carbon emissions decrease. The merit of the Stern Report (2006), an extensive study praised by bodies as diverse as the OECD, the UN and Greenpeace, is to have highlighted the relatively acceptable cost of environmental action (1 percent of GDP) compared with the wholly unacceptable cost of inaction (20 percent of GDP, mass destruction and death). With companies accounting for anywhere from one-third to 60 percent of total global CO₂ emissions, the question is no longer whether MNEs need to change but the best way of achieving this.

'Deep environmentalists' who prioritise sustainability above all other considerations would argue against the principle of voluntary compliance and advocate governmental regulations mandating that CO₂ emissions level out at 450 ppm or less. This is a coherent position but one that frightens certain constituencies, particularly neo-liberal ones that mistrust government. Their preference is for market-based solutions such as cap-and-trade systems that create positive and negative economic incentives for companies to reduce emissions.

At present, the most advanced carbon finance system in the world is the European Union Emission Trading Scheme (ETS), although Barack Obama's Administration has also been accelerating plans for a similar mechanism in the US. The basic principle of all schemes of this kind is that national governments will receive internationally agreed allocations for acceptable carbon emissions, before breaking these credits down within their national economies at the level of each sector and then of each company. The ceiling on national (thus sub-national) allocations will diminish every year to ensure that overall emissions remain below the safe levels determined in the Stern Report or subsequent UN conferences, such as Bali 2007 or Copenhagen 2009. Participants in the scheme will be motivated to take steps to reduce their own emissions since they will otherwise have to pay extra to purchase other parties' allocations if they exceed their own. Conversely, they will also be able to sell any unused credits for a profit. It is because of this latter provision that some analysts portray participation in carbon trading schemes as a key factor in future corporate valuations (Brinkman et al 2008).

The problem is the great uncertainty affecting the implementation of such schemes. Firstly, whereas scientists may be able to agree on what constitutes acceptable total global emissions, the distribution of allocations between nation-states is politically very contentious. This is largely because LDCs have

(quite understandably) argued that it is unfair that they be forced to pay for carbon emissions today because the world's wealthier countries, who polluted without paying during their own development trajectories, have already exhausted the planet's physical possibilities. This principle is widely accepted but encounters resistance from countries who do not recognise its validity for new economic superpowers such as China and India – despite the fact that until recently both of these countries were more or less at a pre-industrial level of economic development, and therefore had very little to do with the existing CO₂ concentrations in the atmosphere.

A second area of contention is the way that national governments decide to allocate carbon emission credits among different domestic sectors and companies (and whether such initial allocations should be free or involve a levy). This is a process that is subject to enormous lobbying, and not always in an entirely transparent manner. As witnessed by price volatility in budding carbon financial markets such as London's European Climate Exchange or the Chicago Climate Exchange (<http://chicagoclimatefuturesexchange.com/>), after several years of preparing for the full-blown implementation of cap-and-trade schemes, very few value benchmarks have been established. It is difficult for companies to commit whole-heartedly to carbon reduction when they are unable to price its value in the marketplace yet are under no legal requirement to make any substantial changes. Moreover, the relative failure of the 2009 Copenhagen conference, which ended without any defined targets being set, bodes poorly for future clarity. In the absence of an agreement, there is little hope of building upon whatever negligible progress has been realised so far in existing schemes such as the UK's tradable green certificate system (which obliges all electricity suppliers to supply a specific proportion of renewable energy, subject to a costly buyout) or, above all, the European Union's emissions trading scheme (ETS). In terms of this latter programme, a major problem has been that, "The reduction in industrial output caused by the recession has allowed big polluters to build up a bank of carbon permits which they can carry into the next phase of the trading scheme. If nothing is done to annul them or to crank down the proposed carbon cap (which, given the strength of industrial lobbies and the weakness of government resolve, is unlikely) these spare permits will vitiate (ETS) phase three as well. Unlike the Kyoto protocol, the EU's emissions trading system will remain alive. It will also remain completely useless" (Monbiot 2010).

Yet there is no doubt that companies have good cause to want to learn how to operate in a low-carbon economy. Analysts are already predicting that the economic effects of losing access to the hydrocarbon fuels that power contemporary economies will, in the absence of alternatives, doom future civilisations to a level of impoverishment currently typifying "a very poor third-world country" (Monbiot 2007). Clearly, this is in no one's interest.

Brinkman, M., Hoffman, N. And Oppenheim, J. (October 2008), How climate change could affect corporate valuations, available at www.mckinseyquarterly.com, accessed 5 October 2010

Monbiot, G. (2007), *Heat: How to Stop the Planet Burning*, Penguin

Monbiot, G. (20 September 2010), Climate change enlightenment was fun while it lasted. But now it's dead, available at www.guardian.co.uk, accessed 5 October 2010

Stern Report (2006), available at www.hm-treasury.gov.uk/, accessed 16 April 2009

■ Revision tips

- Political economic paradigms shift over time. Classic neo-liberalism continues to dominate currently, despite growing disenchantment since the 2008 credit crunch. But there are many incompatibilities between classical and environmental economics: focus on self-interest vs. group-interest ('Tragedy of the Commons' dilemma); relative under-pricing of 'public goods' such as natural resources; inelasticity of supply to price where finite commodities are concerned; relative inelasticity of consumption to price where unsubstitutable generic inputs such as energy are concerned; impact on investment calculations when ecological lifecycle costing methods are introduced, etc.
- The precautionary principle dictates a requirement that the ecosphere be stewarded, if only to represent the interests of unborn generations. However, this can give an unfair advantage to 'free riders' who do not invest in the environment, creating disincentives for those who would otherwise be willing to eschew potential current benefits in the name of long-term environmental protection. An effective economic regime would internalise externalities (overcoming 'market failure') and price resource use at its fair value to ensure ecological justice.
- There is a question as to the nature of economic activity in 'stationary state' / 'zero growth' context. The vision of 'closed loop' transformation processes raises questions about the feasibility and cost of corporate abatement or mitigation efforts. The regulatory context is also a contributory factor.
- A very few environmental policies derive from global negotiations (i.e. the UN CDM scheme). The vast majority are drafted and policed at the national level. Local governments dispense "license-to-operate"; determine the contours of "public interest"; create incentives regimes (e.g. feed-in tariffs, subsidies), etc.
- One problem in an international business context is that multinational enterprises are motivated to play one government against another to seek the least expensive and most lax regulatory environment – an arbitrage driving many regimes into a "race to the bottom". Hence the need for a level playing field, explaining the recurrence of UN environmental conferences (1972 Stockholm through 2009 Copenhagen). The issue then becomes the ratifica-

tion and implementation of any decisions made at such conferences.

- Following the 2008 economic crisis, many governments have started to view green business opportunities as a new industrial revolution, thus as a new driver of economic growth. This explains the proliferation of national stimulus packages revolving around investments in green activities (R&D, infrastructure, etc.). In turn, this has created a number of infant industry situations that are not to the liking of neo-liberals opposed to government support mechanisms. A range of policy tools are being applied worldwide, including the detaxation of green products, carbon trading schemes, green standards, state-sponsored environmental R&D, direct subsidies, etc.

■ Online case study: The 2009 Copenhagen Climate Change Conference

UN climate change conferences are prime examples of international policy frameworks whose effects are supposed to filter down over time into national and, ultimately, corporate consciousness. As with many cross-border governance mechanisms, however, agreements made in principle at the diplomatic level can differ greatly from frontline policy implementation. This is particularly true in an area with repercussions as monumental as the battle against climate change.

Scientists have long known about the potentially disastrous effects of greenhouse gases accumulating in the atmosphere. 1997 saw the Kyoto Protocol, a benchmarking exercise that led, for instance, to calls for global emissions of manmade substances such as CO₂ to drop 20 percent below 1990 levels by the year 2020. In practice, however, Kyoto was weakened by several factors. Firstly, it required no concrete promises from its signatories, just statements of intent. Above all, two leading economies (the US and Australia) withdrew from the process after electing new governments; and almost no progress was made in terms of agreeing the differentiated responsibilities of older industrialised economies responsible for the lion's share of existing greenhouse gases, versus emerging powerhouses such as India and especially China. The net effect is that whereas many countries cut their per capita emissions (so-called 'carbon intensity') over the 2000s, overall economic growth, combined with general ecological inertia, led to a rapid rise in total global emissions.

On the back of this negative performance and following 2004 findings by the Paris IPCC conference of the world's leading economies that climate change is potentially lethal and caused by human activities, the UN scheduled a huge conference in Copenhagen for December 2009. The run-up to this event was marked by meetings like the 2007 Bali conference formulating the objective that global warming be kept below 2 degrees Celsius. There was also the rise

of a small but vocal ‘climate change denial’ industry, largely funded by anti-green ideologists and/or oil companies with a dubious interest in “attacking the science” to prevent new environmental policies whose ultimate effect would damage profitability.

The main hurdle, however, remained the attribution of responsibilities for future industrial adaptations. A 2008 study (www.garnautreview.org.au) found that, “Richer countries tend to have much higher per capita emissions than poorer countries [as] the bulk of greenhouse gas emissions arise from the countries at the centre of global economic activity... China, the United States and the European Union, which between them are responsible for more than 40 per cent of global emissions”. This classification contained some inconsistencies, however, as shown below.

Figure 4.1: 2005 climate change statistics (<http://www.unep.org/climatechange/>):

Country	Tons per capita	Million tons CO ₂
US	19.3	5,781
Germany	9.49	785
United Kingdom	9.05	547
China	4.42	5,839

On one hand, the US clearly remains the world’s leading culprit on a per capita basis. Moreover, along with the older European industrialised countries (and Japan), it is responsible for most of the existing accumulation of greenhouse gases in the atmosphere. In conditions such as these, it seemed only fair that the Copenhagen Conference should decide a system where the wealthy nations would compensate poorer ones for eschewing the ‘dirty’ but cheap older technologies that had powered the former group’s own emergence. Certainly, this was the argument of leaders like China’s Wen Jiabao – not to mention the island states that were on the point of disappearing due to rising ocean levels as the polar ice caps melted.

The problem with international conventions, however, is that politics often replace rationality. At Copenhagen, the United States delegation pointed out quite accurately that China had become the world’s biggest emitter of CO₂. Thus, allowing China to continue using its ‘dirty’ coal unabated made no sense, since the benefits of (costly) emission reductions in some parts of the world would be undermined by continued Chinese pollution. In addition and as is often the case, the debate came under the influence of non-environmental factors. One involved the contrast between China’s now flourishing cash position as the world’s leading exporter, and the financial problems besetting both the United States as the biggest debtor nation (and a prime customer of Chinese goods). Lastly, the health care debate raging at the time in the American domestic arena made US politicians less willing to offer generous concessions.

Few of the policy-makers present at the Conference were able to focus on the ecological imperative without tying it to the other battles demanding their attention.

Despite the many long months of preparation and weeks of direct negotiation, Copenhagen only narrowly avoided complete failure in the end. The final agreement contained no absolute commitments to deep cuts in carbon emissions, nor did China or other emerging countries – such as Brazil or India – cave in to US pressure to establish an international monitoring system (Watts and Vidal 2009). In general, developing countries promised only to engage in measures restricting emissions growth. The net result was that many environmental activists saw Copenhagen as a missed opportunity to prevent the Earth reaching a tipping point beyond which global warming processes would become unstoppable. Some called it a “fiasco”.

On the other hand, Copenhagen did commit all signatories to keeping global temperature rises below 2 degrees (enshrining what had previously been a mere objective) – and dictated that governments quickly develop ‘carbon budgets’ detailing the specific metrics capable of guiding their national economies towards a low-carbon future. A long-term funding package worth \$100 billion per annum was also agreed to help poorer countries fund climate change actions. Lastly, further conferences were agreed for the near future, ensuring that climate change remained at the top of the global agenda. It is this aspect that left some observers with a sense of hope at the end of Copenhagen. By formalising understanding of the ecological imperative, the Conference signalled to managers worldwide that carbon reduction will be a permanent fixture in the international business arena. This certainty is key to investment behaviour since it gives people confidence in their ability to predict the future. The ecological imperative is not only scientific and political but also psychological.

Watts, J. and Vidal, J. (20 December 2009), ‘China blamed as anger mounts over climate deal’, *The Observer*

■ Case study questions

A. How effective are United Nations environmental conferences?

B. If progress is so patchy, why does the UN continue to organise such conferences?

C. What is the outlook for international environmental negotiations post-Copenhagen?

■ Further references

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European Union Emission Trading websites:

http://ec.europa.eu/environment/climat/emission/index_en.htm

http://ec.europa.eu/environment/climat/emission/index_en.htm, www.epa.gov/captrade/

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