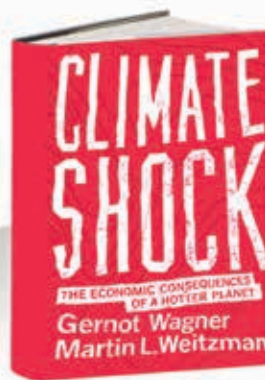


Six Degrees of Devastation



Gernot Wagner and Martin L. Weitzman

Climate Shock

The Economic Consequences of a Hotter Planet

Princeton University Press, Princeton, New Jersey, 2015, 264 pp., \$27.95 (cloth).

This informative, convincing, and easily read book offers general audiences the basic case for global climate mitigation.

Climate Shock points out that the most pressing reason for action on climate mitigation is the possibility of catastrophic outcomes, most importantly a 10 percent risk of a 6 degree Celsius temperature rise unless measures are taken in this century. It argues that carbon pricing should take center stage in mitigation efforts but warns of challenges, not the least of which is free riding (individual countries' temptation to avoid mitigation given that all countries bear the costs of global climate change). Without mitigation efforts, individual countries may resort to inexpensive geo-engineering—for example, releasing sulfur particles into the atmosphere to deflect sunlight—which entails huge risks, including altered global precipitation patterns, while failing to address threats to the marine food chain from ocean acidification.

The case for carbon pricing—charging for the carbon dioxide (CO₂) emissions caused by fuel combustion—is well established: emission prices are reflected in the prices of carbon-intensive fuels, electricity, and other forms of energy, which presents

a full range of mitigation opportunities. These include switching from coal to natural gas or renewable fuels and reducing demand for electricity, transportation, and heating fuels. But unless carbon pricing revenues are used productively—for fiscal consolidation, broader tax cuts on worker income, capital accumulation, and so forth—carbon pricing can impose a large cost on an economy.

The authors do not get into the debate over carbon taxes versus emissions trading systems (through which governments limit rights to pollute by issuing a fixed amount of allowances that firms can trade), though in my view the latter are more convoluted (implying, perhaps, greater risk of key design flaws). Emissions price stability—necessary for cost effectiveness from year to year and to promote incentives for clean technology investments—is automatic under a tax, but under an emissions trading system requires additional measures, such as price floors and ceilings. And in emissions trading systems, allowances must be auctioned and revenues remitted to the finance ministry, if carbon pricing is to be part of broader fiscal reform.

The authors suggest that some current estimates of an emissions price that reflects future climate change damages—about \$40 a ton of CO₂—are much too low, because of problems in modeling extreme climate risks and long-range discounting. But the concern seems of little practical relevance now, given that only about 12 percent of global emissions are currently priced, typically at about \$10 a ton or less.

The free rider issue has caused much agonizing in international climate negotiations over enforcing countries' mitigation pledges and appropriate compensation for mitigation in poorer countries. But the problem may be a bit overblown: carbon pricing can actually be in a country's own interest if the domestic environment benefits—for example, because of fewer deaths from local air

pollution arising from fossil fuel combustion—outweigh mitigation costs. IMF estimates suggest that, averaged across large emitting countries, these benefits warrant CO₂ prices of about \$57 a ton *before* counting in global warming benefits.

There may be other reasons to be a bit more optimistic than the authors about the prospects for carbon pricing. New revenues are attractive to finance ministries seeking to cut other taxes, meet consolidation needs in the wake of the fiscal crisis, or fund public services in countries whose large informal sectors constrain broader tax bases. And carbon pricing can entail a straightforward extension of what most finance ministries are already doing: it can build a carbon charge into existing motor fuel excises and apply similar charges to the supply of other petroleum products, coal, and natural gas. More quantitative analysis of the environmental, fiscal, health, and other benefits of carbon pricing at the country level is needed to help governments make the case for carbon pricing to legislators and the public.

The book could have elaborated a bit on measures needed to accompany carbon pricing. For example, instruments (varying with country circumstances) need to be designed to mitigate impacts on vulnerable households and firms. Clean technology incentives also have a role, but guidance is needed on which instruments to use and how to set their level and phase them out as new technologies mature. And at an international level the practicalities of monitoring and enforcing agreements (for example, regarding carbon tax floors among large emitters) that can complement the UN process must be fleshed out.

While this book lays the basic intellectual groundwork, there is more to be done in thinking through the practicalities of moving carbon pricing forward.

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