to establish a national carbon trading system, backtracking in several of the state and regional trading initiatives, continuing questions about the sustainability of the European Union Emissions Trading Scheme, and highly charged debate in other political contexts such as Australia. Perhaps U.S. Senator Joe Manchin (Democrat of West Virginia) best described the new normal in a 2010 re-election commercial in which he loaded his rifle and shot a bullet into a target marked "cap and trade bill."

It is impossible to know at this juncture whether this backlash has dealt a fatal blow to continued development of this policy tool, in climate change or other areas of environmental protection. But the rapid and largely unanticipated emergence of counter-coalitions on emissions trading produces a very different outcome than Meckling—and likely most other climate policy scholars—envisioned as recently as 2010–11. Coming to terms with this shift and its larger consequences raises important challenges for scholars examining not only the anticipated efficiency gains of market-based policy strategies but also the conditions under which they would become credible candidates for adoption and implementation in the political arena. Scholars like Jonas Meckling are exceptionally well-situated to begin to weigh in on those issues.

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The Green Paradox: A Supply-Side Approach to Global Warming. By Hans-Werner Sinn. Cambridge and London: MIT Press, 2012. Pp. xv, 269. $29.95. ISBN 978–0–262–01668–1.
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This well-written book by the influential German economist Hans-Werner Sinn provides nontechnical readers interested in the economics of climate change an alternative view from the supply side of fossil carbon market. The "Green Paradox" is certainly controversial and has generated heated debates and series of economic research since it was first put forward (Sinn 2008). It is probably not a first book to pick up on the topic. Nonetheless, for someone with reasonable knowledge on the issue of climate change as well as the usual treatment of the problem in economics and public policy, *The Green Paradox* is a pleasant read that does raise some valid questions.

This book is nicely organized, with each chapter paving the way leading up to the final revelation of the "Green Paradox." It starts with a succinct account of the science of the greenhouse effect, provides evidences for anthropogenic global warming, and highlights potential catastrophic consequences. The chapter may not be of much interest to readers familiar with climate change, yet it sets up the problem that the remainder of the book attempts to tackle.

Chapter 2 takes a look at the world's energy-supply mix. Fossil fuels are the dominant source of energy. Nuclear and renewable options are cleaner but none is a viable substitute for fossil carbon at the moment. The author reviews the existing demand-side climate policies, such as feed-in tariffs, EU's emissions trading system, and the Kyoto Protocol, and argues that there are serious leakage problems in all cases. Carbon sequestration and afforestation are the only options that reduce carbon in the air, yet are limited by their respective issues.

Chapter 3 focuses on bio-energy and provides a series of arguments against using it as a perfect substitute for fossil fuels. Besides nitrous oxide waste, carbon debt from clearing forests and land requirements, there is the tension between energy and food, both of which are carbon-based. When energy prices catch up with food prices, the two markets become coupled because of the one-sided substitutability of bio-carbon for fossil carbon. The

resulting high food prices may lead to hunger crises like the Tortilla Crisis in 2007.

Chapter 4 switches to discussion on the supply side of fossil fuel markets. Simple analysis of supply and demand suggests that the effectiveness of the demand-side policies depends on the elasticity of carbon supply. To understand it, the author uses the Hotelling model of intertemporal optimization of depletable resources, and analyzes the resource owners' portfolio choice between man-made capital and natural capital that remains underground. The derivation suggests that, on the socially optimal extraction path, the appreciation rate of resources in situ is equal to the market interest rate minus the climate damage, while, on the market path, the appreciation rate equals the market interest rate plus probability of expropriation. Therefore, greenhouse externality and insecure property rights lead to an accelerated extraction path, worsening climate change.

The last chapter of the book advances the supply-side analysis and presents the "Green Paradox," that "(t)he mere announcement of intentions to fight global warming made the world warm even faster" (189). The key insight is that demand-reduction measures affect carbon supply through pressure on future prices. Since the existing "green" policies almost always involve increasing stringency and widening coverage over time, the increasing downward price pressure therefore induces resource owners to expedite extraction and thereby exacerbates the climate problem. To avoid such problems, the author proposes a swiftly introduced "super-Kyoto" global consumer cartel with all countries committing to a cap-and-trade system, as well as a source tax on capital income that gives the resource owners more incentive to choose a slower extraction path of their fossil fuels.

The main portion of the book is largely based on the author's earlier writings (Sinn 2008). The book, while omitting the technical details of the model behind the analysis, provides some additional evidence and tries to address a few critiques regarding the paradox since its first appearance. For instance, the author argues that production costs are too small a portion of price for it to affect supply substantially. There are, however, certain issues that may be addressed in more detail. One potential issue with the analysis that goes unmentioned in the book is the shape of the demand curve. Suppose the demand becomes highly inelastic beyond a certain quantity, which will be the case if energy cannot be productive by itself but must be used together with other limited factors, then the resource owners cannot increase extraction without limit as too much supply will make prices too low for them to be profitable. The very episode of the Great Recession illustrates that reduction in fossil-fuel demand can indeed reduce fossil-fuel consumption (International Energy Agency 2011). This is in fact similar to the author's proposed global cap-and-trade system, which essentially creates a demand curve that is perfectly inelastic. Another assumption that ensures that the prices of fossil fuels keep increasing is the absence of a backstop technology that provides a perfect substitutes to fossil fuels. While the existence of such a technology does not rule out "Green Paradox," as stated by the author, it will nevertheless dissolve the coupling of the energy and food market and the conclusions of chapter 3 may be different. Lastly, since the author suggests that the episode of declining fossil-fuel prices in the 1980s and 1990s may be explained by the "Green Paradox," it would be nice to see if there is a way to test that hypothesis.

Overall, the author presents a coherent argument for more attention on the supply side when designing policies to address climate change. Even one may have a different opinion on whether the assumptions that lead to potential "Green Paradox" hold true in reality, this book does raise an interesting and valid point that previous research and policy considerations have largely overlooked.

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Z Other Special Topics

Heredity, Family, and Inequality: A Critique of Social Sciences. By Michael Beenstock. Cambridge and London: MIT Press, 2012. Pp.