

The Skeptical Environmentalist: Measuring the Real State of the World.
By Bjørn Lomborg. Cambridge, England, 2001.

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Few academic books about environmental issues have generated as much attention as Lomborg's "Skeptical Environmentalist". Lomborg is a statistics professor who describes himself as "an old left-wing Greenpeace member". Provoked by a magazine article seeking to debunk environmentalist rhetoric, Lomborg - with help from students - devoted the fall of 1997 to studying the data on environmental problems. This study led to an abrupt change in Lomborg's views. Despite his environmentalist background, Lomborg concluded that much of the environmentalist literature is misleading, exaggerated, and downright wrong. He also concluded that the world's environment is getting better rather than worse, and writes (p. 351): "We are actually leaving the world a better place than when we got it...mankind's lot has vastly improved in every significant measurable field ... [and] is likely to continue to do so."

A stinging but representative review by Stuart Pimm and Jeff Harvey ("No Need to Worry about the Future", *Nature* 414, 149-150, 2001) illustrates the strength of feeling generated by Lomborg. They write: "The text employs the strategy of those who, for example, argue that ... Jews weren't singled out by the Nazis for extermination ...". This linking of Lomborg with Nazis is a remarkably gratuitous example of attempted character assassination that seems to reflect an intensity of feeling rare in academic circles.

In criticizing much of the environmentalist literature, Lomborg has chosen an easy target. For example, the resource depletion forecasts in the highly influential *Limits to Growth* by Dennis Meadows et. al. (1972) turned out to be dramatically wrong. More broadly, the latter third of the 20th century was a period of widespread improvement in living standards in all major regions of the world except sub-saharan Africa. This contrasts sharply with the tone and predictions of much environmentalist literature. Lomborg's book goes through the empirical record regarding the major environmental issues: acid rain, deforestation, energy shortages, global warming, ozone depletion, etc. and argues persuasively that general perceptions of these problems are worse than the actual situation.

Lomborg does not offer much insight as to why environmental and resource use problems have been less severe than predicted. Economists would emphasize the importance of economic incentives. When, for example, the real price of petroleum has risen, we have seen reductions in petroleum consumption, more exploration, and substitution of other energy sources. However, to recognize the importance of economic incentives is to realize that they may be insufficient in the presence of significant market failure.

My biggest complaint about Lomborg concerns his rosy outlook for the future. In technical terms, I believe that Lomborg fails to adequately account for non-linearities in economic systems. An example is provided by Scott Taylor and myself in "The Simple Economics of Easter Island", *American Economic Review*, 1998 (which is discussed by Lomborg (p. 29)). The problem on Easter Island was depletion of the island's palm forest, leading to an economic collapse and descent into barbarism during the 15th century. However, a time-series linear regression relating income to time performed in, say, 1400 and extrapolated into the future would have suggested that things were fine. Unfortunately, economic incentives notwithstanding, the Easter Island economy was on a cyclical trajectory due to resource depletion, much like a predator – prey model with humans as predators and trees as prey. A linear extrapolation from 1400 would have been very misleading but that is the essential logic underlying Lomborg's optimism.

Is the Earth as a whole like Easter Island writ large? We do not know. Prominent scientists such as E.O Wilson have taken issue with Lomborg's assessment of various scientific debates, including the rate of species extinction, the likely effects of global warming on climate change, etc. (as described on the website www.anti-lomborg.com). I am in no position to referee the scientific disputes but it is clear that there is considerable scientific uncertainty over crucially important issues. It is much too early to adopt the complacent prognosis that characterizes Lomborg's work. I am reminded of the joke about the man who falls off a tall building. About halfway down someone shouts from a window asking how he is and the response is "fine so far". We do not want to wait for a turning point (or crash landing) before taking appropriate action.

As a side point, while human beings made significant progress in the 20th century, this period was an unmitigated disaster for many other large mammals. Whales, elephants, apes and other animals in competition with human beings have been reduced to trace populations with many species having disappeared altogether. The rapid loss and near-loss of these intelligent and feeling beings we have shared the planet with for tens of thousands of years is perceived by many as a great loss that has already occurred.

The book also fails to do justice to what I see as the major environmental issue: population growth. The world's current population is a little over 6 billion and the current rate of population growth is about 1.3% per year. If we extrapolate this growth rate for time horizons of a few decades to a few centuries the implications grow from alarming to ludicrous. Population growth rates have to fall. The question is whether this demographic transition will occur through (presumably voluntary) declines in fertility or (involuntary) increases in mortality. The former has occurred in Europe, North America and parts of Asia over the past century, but the current situation in Africa and much of human history should remind us that demographic adjustment through disease, starvation and violence is all too common. I see very little in Lomborg's analysis to comfort me on this point.

Overall, despite my criticisms (and a poor index) this book is a "must-read" for anyone with serious interests in environmental economics and I would also recommend much of the associated critical response.

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