

A skeptical environmentalist: The greening world of Bjørn Lomborg

The data hound

Bjørn Lomborg, the youthful author of *The Skeptical Environmentalist* and other books, is an enigma.¹ What can you say about a man who's written a book with 2,930 footnotes? He is obsessed with data.

And he loves controversy. Rarely presenting both sides of a story (you may have noticed that I don't either), the Danish academic argues that the environment is getting better in most ways. The reason, he says, is that we are becoming richer, more technically able, and thus continually better positioned to deal with the problems that large, technologically advanced societies face.

Essentially, he says that we're on the down side (the good side) of the environmental Kuznets curve – hereafter “EKC” – described in the **last chapter**, although he doesn't mention the EKC by name even once.²

A good bit of this chapter will be about Lomborg's book and the data he presents, but first I want to place Bjørn Lomborg, the man, in context and comment briefly on his philosophy and the controversy he's engendered.



Bjørn Lomborg³

¹ Lomborg, Bjørn. 2001. *The Skeptical Environmentalist: Measuring the Real State of the World*. Cambridge, UK: Cambridge University Press.

² The discovery of the EKC by Grossman and Krueger was roughly contemporaneous (1991-1995) with Lomborg's early research, so it's understandable he might not have heard of it. Still, it seems like an odd omission.

³ Source: http://ronbenningtoninterviews.com/wp-content/uploads/2011/09/bjorn_lomborg_435x2901.jpg

Challenging received wisdom

Originally a left-leaning Greenpeace member and “vegan backpacker,” Lomborg, while researching environmental science, was influenced by Julian Simon’s pro-growth book, *The Ultimate Resource* (see [chapter x, Simon and Ehrlich](#)). Lomborg writes,

It all started in 1997, when [I] read a *Wired* Magazine interview with economist Julian Simon claiming that the environment - contrary to common understanding - was getting better, not worse. ...[T]his had to be incorrect (“right wing, American propaganda”)...

I’m glad he wasn’t satisfied with his first reaction! Lomborg continues,

[I] organized a study group with some of [my] top students to prove Simon wrong. ...[T]o everyone’s surprise, much (though definitely not everything) of what Simon said was right. [The project]...led to the publication of a Danish book later that year and to *The Skeptical Environmentalist* in 2001.⁴

The critics howled...

The Skeptical Environmentalist touched off a firestorm of criticism, resembling in emotional temperature the response to the *Ninety-Five Theses* that Martin Luther nailed to the Wittenberg church door in 1517. Lomborg’s detractors fall into two categories. One group claims that he is a climate change “denier” and an anti-environmentalist.⁵ He is nothing of the sort. “He has never denied that mankind’s actions are making the earth hotter, merely that it makes more economic sense to adapt to higher temperatures than resist them,” writes Matthew Moore in *The Telegraph*.⁶ In his later work, Lomborg has become even clearer regarding his belief in the science of global warming and his view that climate change constitutes a meaningful risk.

But, pursuing economic reasoning, Lomborg wants to get good value per social or environmental dollar spent. He asks us to recognize that there are other problems

⁴ <https://www.lomborg.com/for-journalists>

⁵ I don’t like the word “denier” because it comes from “Holocaust denier,” a disgusting species of person who claims that the six million murdered European Jews never existed, mysteriously disappeared, or are still living. Expressing concern that climate change risk may be overstated, or that the evidence for it is incomplete, or that money is better spent fighting other threats, is not in the same category and people who make the connection should be ashamed of themselves.

⁶ Moore, Matthew. 2010. “Climate ‘sceptic’ Bjørn Lomborg now believes global warming is one of world’s greatest threats.” *The Telegraph* (August 21), <https://www.telegraph.co.uk/news/earth/environment/globalwarming/7972383/Climate-sceptic-Bjorn-Lomborg-now-believes-global-warming-is-one-of-worlds-greatest-threats.html>

that need to be solved with the resources available, which are always limited. Each problem needs to be balanced against every other, with regard to both importance and the likelihood that the proposed remedies will work. Lomborg's Copenhagen Consensus Center supports programs relating to education, health, hunger, inequality, population growth, and trade and migration as well as specific countries such as India, Bangladesh, and Haiti. These are not the priorities of someone who doesn't care.

The second category of critiques is that Lomborg is trained as a political scientist and statistician, not an economist or environmental biologist. He thus writes outside his field of expertise, does so with brio and confidence, and sometimes glosses over evidence contrary to the point he is trying to prove. Since I am doing the same thing (not sure about the brio), I'm going to ignore that critique.

Comparing costs and benefits

Lomborg gets one thing *exactly* right: all decisions, including environmental, personal, and political choices and any other kind of decision you might be faced with, can only be made sensibly if you apply cost-benefit analysis. *All* of the costs, including hidden ones, must be fully accounted for, and long-run costs (or benefits) must be balanced against short-run benefits (or costs).

In the same spirit, *all* of the benefits, including those you can't see and that may seem completely unrelated, must be accounted for. The long-run versus short-run balance that matters for costs also matters for benefits.

This principle of economics, or of life if you'll permit me, goes back to Frédéric Bastiat, the Frenchman from two centuries ago whom we met in [chapter x, Scrooge](#). Bastiat did not even claim originality – he acknowledged his debt to the earlier historian François-René de Chateaubriand – so the idea is old indeed. Americans may be more familiar with the brilliant restatement of Bastiat's ideas by the journalist Henry Hazlitt,⁷ or with their expression by Milton Friedman in his bestselling books and public television shows.

But, wherever you heard the idea, it is probably the most important economic concept you'll ever learn. Only “people respond to incentives” comes close.

⁷ Hazlitt stated the rule in three parts: “The bad economist sees only what immediately strikes the eye; the good economist also looks beyond. The bad economist sees only the direct consequences of a proposed course; the good economist looks also at the longer and indirect consequences. The bad economist sees only what the effect of a given policy has been or will be on one particular group; the good economist inquires also what the effect of the policy will be on all groups.” Hazlitt, Henry. 1946. *Economics in One Lesson*. New York: Harper & Brothers.

Prioritizing ways of helping the world

Even if only half of what Lomborg says is true, then, most of us are thinking about environmental remediation in the wrong way. There are only so many resources in the world, and only a fraction of them are available to be spent on social, environmental, health, and allied problems. That fraction could and should rise or fall according to need; but whatever amount is available, it should be spent as efficiently as possible. It should be spent in a way that reflects not just the severity of each problem but “how effective our solutions might be.”

Lomborg’s 2004 Copenhagen Consensus (a convention of experts) came to the surprising conclusion that adding micronutrients to the diets of the poor, and controlling HIV and AIDS, offered the biggest “bang for the buck,” and climate change mitigation the smallest.⁸ That is not because climate change is unimportant; although Lomborg had argued that past warming had mostly been beneficial, he believes warming could be very harmful in the future. It’s because, according to his panel of experts, the proposed remedies are likely to have astronomical costs and will do almost nothing to solve the problem.

But what *kind* of experts did Lomborg think it was wise to assemble? *Prioritizing* the problems and solutions, given their various potential costs and benefits, is the task at hand. And, since figuring out how to allocate limited resources to satisfy unlimited needs is what economists do, Lomborg assembled his brain trust from among the community of economists. Not biologists or sociologists or doctors; *economists*. This approach provides a fresh set of eyes with which to view the problem and is to be commended.

Later versions of the Consensus have given more favorable play to climate change remediation. However, it still ranks far below a number of lower-cost, higher-impact projects such expanding access to contraception, making it easier for workers to migrate in search of opportunity, and promoting free trade among nations.

Some of the experts in his group rebelled. The late Thomas Schelling, who won the 2005 Nobel Prize in economics, thought that if a more modest proposal to combat climate change had been considered, it would have ranked higher; the remedy under discussion was too radical. Jeffrey Sachs, head of the Earth Institute, objected that economists were the wrong kind of experts to make such choices, but Lomborg countered that “that was the very point of the project. Economists have expertise in economic prioritization. It is they and not climatologists or malaria experts who can prioritize between battling global warming or communicable disease.”⁹

⁸ https://www.ted.com/speakers/bjorn_lomborg

⁹ Lomborg, Bjørn. 2004. “Need for economists to set global priorities.” Correspondence, *Nature*, volume 431, page 17 (September 2).

Economic growth *über alles*?

Lomborg's philosophy meshes, to some degree, with the New York Times science reporter John Tierney's famous claim that "the richer everyone gets, the greener the planet will be in the long run."¹⁰ Getting richer not only feeds, heals, and educates people, and gets rid of smoke and sulfur dioxide as we saw earlier, but helps with decarbonization and ultimately reduces warming trends. Tierney explains:

...[A]s people get wealthier they can [not just] afford cleaner water and air., [t]hey start using sources of energy that are less carbon-intensive — and not just because they're worried about global warming. The process of "decarbonization" started long before Al Gore was born.

As their wealth grows, people consume more energy, but they move to more efficient and cleaner sources — from wood to coal and oil, and then to natural gas and nuclear power, *progressively emitting less carbon* per unit of energy. This global decarbonization trend has been proceeding at a remarkably steady rate since 1850, according to Jesse Ausubel of Rockefeller University and Paul Waggoner of the Connecticut Agricultural Experiment Station.

(We'll return to carbon emissions later in this chapter, when we show various attempts to quantify the EKC.)

An urban, high-tech society is very energy-efficient and will gradually become almost carbon-free, says Tierney:

"Once you have lots of high-rises filled with computers operating all the time, the energy delivered has to be very clean and compact," said Mr. Ausubel, the director of the Program for the Human Environment at Rockefeller. "The long-term trend is toward natural gas and nuclear power, or conceivably solar power. If the energy system is left to its own devices, most of the carbon will be out of it by 2060 or 2070."

These are bold claims, and they amount to more than an assertion that the EKC exists. It is an argument that, followed to its logical extreme, suggests you don't want to do *anything* to save the environment until we all become "rich" because it will be so much easier to do it then. *All surplus resources should be reinvested in economic growth, not environmental remediation* – at least that's where this thinking could lead you.

¹⁰ Tierney, John. 2009. "Use Energy, Get Rich, and Save the Planet." *New York Times* (April 20), <https://www.nytimes.com/2009/04/21/science/earth/21tier.html>. My italics in the block quote.

Rich is in quotes because, in this setting, it does not mean Lifestyles of the Rich and Famous, mansions and yachts. We are rich when everyone in the world has the opportunity to enjoy a decent, modern, well-fed, well-housed, well-educated lifestyle.

Tierney's logic implies that, when we reach that goal, not just through capital and skills accumulation but through technological advances that may have the side effect of making environmental improvements easy and cheap, *only then* should we make the environment our primary focus. Until then, it's about people, betterment, enrichment.

I'm exaggerating for effect, of course. Bjørn Lomborg wouldn't accept the most extreme implications of this logic, and he celebrates the environmental improvements we've made in the past. He would say they were absolutely necessary and also not good enough. It's a little unfair to link Lomborg's eclectic utilitarianism with Tierney's "hard green,"¹¹ and I'm not sure Tierney accepts the full import of his own logic either (I don't know his work intimately) – but both men make valid points and enjoy making mainstream environmental thinkers uncomfortable.

As with most issues, I favor moderation, a concerted but not radical effort to achieve environmental improvements in the here and now while growing the global economy to a point where we may not all be rich, but all people have a better than fighting chance to achieve what we would now call a middle-class existence.

Evidence of a greening world: "Good but not good enough"

Lomborg begins *The Skeptical Environmentalist* with what he called "the Litany," the usual recitation of ways in which the growing population and its increasing wealth are supposedly ruining the environment. Of course, there's a grain of truth to the Litany – as we saw in the [previous chapter](#), early stages of agricultural and industrial development can be ecologically terrible.

Lomborg then demolishes most of the Litany, but since we've already heard that from Ridley, Rosling, Norberg, and Pinker,¹² we'll skip that part, except to point out the Lomborg finds a few rotten apples in the horn of plenty. For example, as of 2010, 680 million people in the developing world, some 9% of the world population, were *starving*. Not malnourished – starving, the technical definition of which is having

¹¹ Here, I use "hard green" as the author Peter Huber [1999] did, to mean *not* radical environmentalism but the old-school conservationism of Teddy Roosevelt. I've deliberately avoided citing the work of Huber, a senior fellow at the Manhattan Institute and a Forbes columnist; his green is a little too hard for me. Huber, Peter W. 1999. *Hard Green: Saving the Environment from the Environmentalists, A Conservative Manifesto*. New York: Basic Books.

¹² Lots of Scandinavians!

“inadequate [food] to cover even minimum needs for a sedentary lifestyle.”¹³ While it’s a big improvement from the recent past when many more people were starving, it’s definitely “not good enough.”

In the next sections of *The Skeptical Environmentalist*, Lomborg then demonstrates improvement in population control, life expectancy, health, nutrition, money incomes, consumer goods (a Lomborg graphic appears in **chapter x, technology and jobs**), education, leisure, and safety – concepts familiar from our earlier chapters. He then responds, mostly optimistically, to a number of concerns about depleting resources, such as forests, fisheries, energy, minerals, and water. (Water? Really? We have enough water?) This line of reasoning is not new, although Lomborg impressively squeezes it all, with mountains of supporting data, into a single volume.

Lomborg is not a Pollyanna. He says that many things about our world are good but not good enough. His Copenhagen Consensus organization has evolved from one mainly concerned with conserving the environment in an economically efficient way to a broader-based problem-solving group. The group now seeks out expert opinion in finding a balance between environmental issues, nutrition, health, social welfare, liberty, and many other questions.

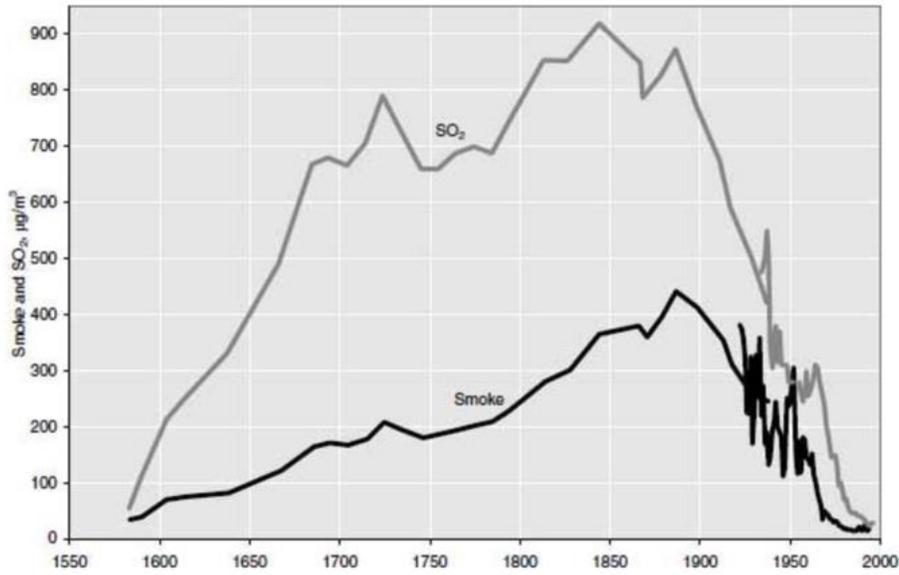
Cough, cough

The part of *The Skeptical Environmentalist* that links most closely to the EKC discussed in the last chapter starts with Lomborg’s chapter entitled “Pollution.” Pollution is what we first think of when we contemplate environmental destruction, although it is obviously not the only serious concern.

Exhibit 1 shows the evolution of sulfur dioxide and smoke pollution in London over a *very* long period of time, from Shakespeare’s day through the present.

Exhibit 1
Sulfur dioxide and smoke concentration in London, 1585-2000

¹³ Definition used by the United Nations Food and Agricultural Organization, cited in Hickel, Jason. 2015. “The hunger numbers: are we counting right?” *The Guardian* (July 17), <https://www.theguardian.com/global-development-professionals-network/2015/jul/17/the-hunger-numbers-are-we-counting-right>. This definition gives a low estimate of the incidence of hunger because most poor people cannot survive while engaging in a sedentary lifestyle; they more typically need to perform heavy physical labor involving much higher caloric consumption.



Source: Lomborg [2001], p. 165.

Strictly speaking, this isn't an EKC because it plots pollution against *time*, not wealth, but London got richer so steadily over the period that pollution might as well be plotted against wealth in this diagram. Clean, dirty (peak dirty in the mid- to late 1800s), clean.

How do we know how much sulfur dioxide or smoke was in the air in London in 1585? We don't, exactly. According to Lomborg,

On the basis of coal imports...the British environmental scientist Peter Brimblecombe...has estimated the concentrations of sulfur dioxide and smoke (particles or soot) in the air...from as far back as 1585... [L]evels of smoke pollution increased dramatically [for] 300 years...only to have dropped even faster [starting in]... the late nineteenth century...such that the levels of the 1980-1990s are below the levels of the late sixteenth century.

This despite the fact that last severe London smog, which occurred in 1952, "killed about 4,000 Londoners in just seven days," some by drowning after having fallen into the Thames because they could not see it.

Lomborg continues,

[S]moke or particles are probably by far the most dangerous pollutant. In other words, with respect to the worst pollutant the London air has not been as clear as it is today since the Middle Ages... Air pollution is not a new phenomenon that has gotten worse and

worse – it is an old phenomenon, that has been getting better and better [for over a hundred years].¹⁴

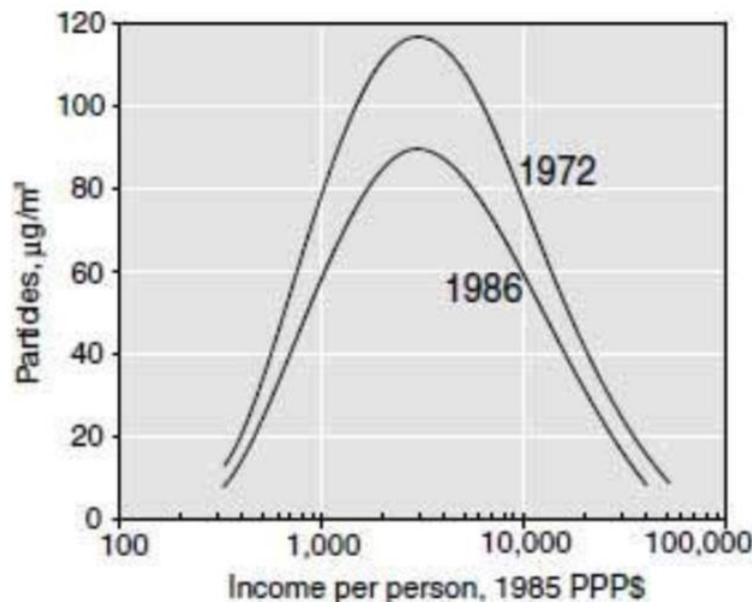
Incomes and pollution

Gene Grossman and Alan Krueger, the discoverers of the EKC, whom we met in the previous chapter, hypothesized and then documented a relationship between *income* and environmental quality. We haven't quite demonstrated this, except indirectly in the case of London smog. But Lomborg's research turns up a direct connection.

Exhibit 2 shows the relation between country income (that is, PPP-adjusted *per capita* GDP) and particulate-matter air pollution in 1972 and 1986. In both years, pollution turned down as incomes rose above about \$3000 per year – about \$7000 in today's money, or about the income level of India or Guatemala.¹⁵

Exhibit 2

Environmental Kuznets curves: The relation between PPP GDP per capita and particulate-matter air pollution in 48 cities in 31 countries in 1972 and 1986



Source: *TSE*, p. 177.

¹⁴ Lomborg (2001). *Op. cit.*, p. 164. London's population also grew tremendously over the period, so if the x-axis represented *per capita* real income, not the total real income that is roughly captured by the time dimension, the pollution curve would have peaked earlier and come down more quickly.

¹⁵ Although the data in Lomborg's example are old and the specific problems represented by the example have largely been solved, the underlying principle is still valid and important.

But the *amount* of pollution at the peak of the curve also fell by about 25% between 1972 and 1986; not only does each curve slope downward beyond a certain level of income, the *curve itself* moves lower over time, representing less pollution at *each* income level as time passes. A similar analysis of sulfur dioxide shows peak pollution at about the same income level, but with a steeper lowering of the curve over time – 60% between 1972 and 1986.

Is the environmental Kuznets curve a universal principle?

Will this upside-down U-shaped relation between incomes and pollutants *always* work? Probably not. Some pollutants continue to rise with incomes, although true believers in the curve would say that incomes are just not high enough yet for the amount of pollutant to turn down. (This appeared to be the case with carbon until recently; more on that later.) And some pollutants fall with incomes at all levels, never showing a rising part of the curve.

There are some exceptions to the EKC. Species diversity is a particularly difficult one. As income levels rise, you don't get new species to replace those that have become extinct. This is because, no matter how clean the environment, new species take a long time to "appear" (that is, to become differentiated from existing ones).¹⁶

Yet, if you go beyond the species to the individual animal as the unit of analysis, the curve comes back. "The Kuznets curve," writes the British researcher Alexander C. R. Hammond,

not only applies to forest area [which is increasing in rich countries; see [chapter n, Cities](#)], but also biodiversity. [Matt] Ridley gives the example of three apex predators: wolves that live in developed countries of Europe and North America, tigers who mainly inhabit mid-income India, Russia and Bangladesh, and lions, which live in poor Sub-Saharan Africa. Following the Kuznets curve, wolves are rapidly increasing, tiger numbers have been steady for the last 20 years (and have just begun to increase), while lion numbers continue to fall.¹⁷

Lomborg is sanguine about whether the general EKC principle can be relied on across time and differing circumstances: "There are no decisive reasons to assume that the same development will not happen in the Third World which today faces

¹⁶ At least this is true of large, familiar animal and plant species. Bacteria and other microorganisms can evolve faster than we destroy them. What most people call "biodiversity" refers to animals and plants, which are a small fraction of the living things on earth.

¹⁷ Hammond, Alexander C. R. 2018. "No, We Are Not Running Out of Forests." *humanprogress.org* (online, May 24), <https://humanprogress.org/article.php?p=1295>

serious environmental problems equivalent to those we faced 50 [to] 80 years ago.”¹⁸

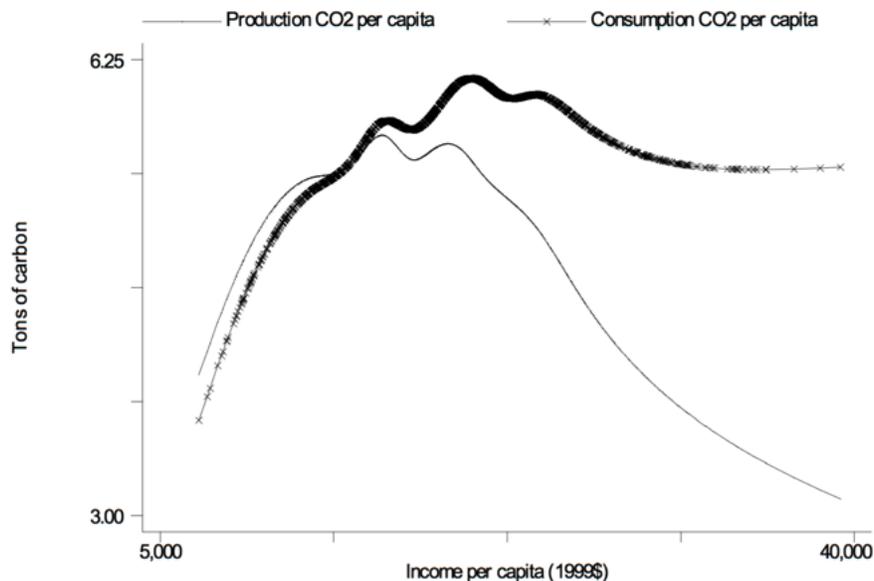
Different curves for different problems

In other work (not covered by Lomborg), the EKC is shown to move around a lot depending on what pollutant or index of environmental quality you care about. The peak is not always at \$7000. Alexander C. R. Hammond writes, “Once nations hit around \$4,500 GDP per capita, forest areas begin to increase.”¹⁹ That’s a pretty low income, below that of Pakistan and close to that of Bangladesh.

But, for some materials, the point at which the EKC turns down is much, much higher – and therein lies the rub. The remarkable energy density of fossil fuels makes their use very desirable if one ignores environmental considerations. For this reason, carbon emissions are among the last to decrease as incomes rise; fossil fuel consumption is a type of luxury good.

Here is an estimate (not from Lomborg) of the EKC for carbon, separated into emissions from production and emissions from consumption:

Exhibit 3
Production- and consumption-based environmental Kuznets curves (the heavier line represents consumption)



Source: Aldy [2004].²⁰

¹⁸ Lomborg (2001), p. 176.

¹⁹ Hammond. 2018. *Op. cit.*

²⁰ Aldy, Joseph E. 2004. “An Environmental Kuznets Curve Analysis of U.S. State-Level Carbon Dioxide Emissions.” Department of Economics, Harvard University (August 9),

Note: The figure presents the fitted values for the 1,920 income-per-capita observations in the data. To convert to current (2018) dollars, multiply the 1999 dollar amounts by 1.51.

Note that the two curves have very different shapes. The higher one (showing less improvement) is for carbon emissions from consumption. The lower one (showing a bigger reduction in emissions) is for production.²¹ For example, the carbon footprint of manufacturing, say, a washing machine (production) is much lower at higher incomes, while that of operating that same machine (consumption) does not improve as much.

Peak carbon emissions, then, seem to be around the income levels of the world's newly industrialized or moderately rich countries. Rich-country CO₂ emissions are beginning to turn down sharply, as Western European, U.S., and Japanese incomes pass through the \$40,000-\$60,000 range. The change is due to several factors: more efficient vehicles and power plants, the growth of alternative energy sources, and social developments such as less driving. These trends bode well for the long-term future of the Earth, when today's middle-income countries are rich and today's poor countries are middle-income – if we can get there in one piece.

By the way, the EKC doesn't work "all by itself." Public policy is instrumental in limiting pollution or emissions of any kind, for the reason stated earlier: private parties always try to externalize. The reason a country with a *per capita* GDP higher than, say, \$7000 begins to reduce particulate-matter air pollution is that the people, expressing their will through the political system, are at that point able and willing to make the *sacrifice* necessary to reduce pollution. The same principle works with carbon, at a different income level. That is one reason why we should encourage as much economic development as possible.

Conclusion: Some ways to spend a trillion dollars

Lomborg's economic-efficiency approach to thinking about the environment leads me to propose a thought experiment. Suppose a trillion-dollar expenditure, now, devoted to decarbonizing the global energy supply, would (with certainty) lead to a 0.5°C. (about one degree Fahrenheit) decrease in the global average temperature in 2100, relative to what it otherwise would be.

It is very unlikely to do anything of the kind: the fully allocated cost, including losses in transportation efficiency and so forth, would be many times larger. But let's say for the sake of argument that the strategy will work.

https://sites.hks.harvard.edu/m-rcbg/repsol_ypf-ksg_fellows/Papers/Aldy/Aldy%20States%20EKC%20Paper.pdf

²¹ Aldy calls the two kinds of activities "pre-trade" and "post-trade." I have reinterpreted these terms as production and consumption.

Assuming that the point of spending the trillion in the first place is to *help people*, what else could we do with the money? If, as I said earlier in this chapter, 680 million people are starving, we could buy each of them 1,470 bowls of golden rice at a dollar a piece – now *that* would make a difference! We would almost certainly be able to eradicate malaria – about ten times over, according to the Gates Foundation. That would make hundreds of millions of tropical residents dramatically more productive. They would feel much better too.

A trillion dollars would more than suffice to build a seawall that would protect Bangladesh from flooding due to rising sea levels for a millennium. With the leftover money, we could protect Venice, New Orleans, and (if you care) Miami Beach. We could educate a hundred million girls in Africa and the Middle East. The possibilities are endless unless you consider the trillion dollars to be spoken for by the One True Cause.

Of course, given enough time, we can come up with more than just one trillion dollars to spend. But resources are not unlimited and never will be. To paraphrase Senator Everett Dirksen, a trillion here and a trillion there and pretty soon you're talking about real money. Trying to control the earth's climate fluctuations by removing the part of them that is manmade is one strategy, but trying to efficiently adapt to the fluctuations – and helping people in a myriad of other ways – is another, more consistent with the principles of economic reasoning.

There is no single answer. Economic growth will help – a lot.