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Environmental Insights Episode #3, 2026
Guest: Ken Gillingham
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Kenneth Gillingham:

For carbon pricing to work, you maintain the price. You don't just give the money back directly. You would have to find ways in which there's still an incentive for everyone – low income, middle income, high income – to reduce emissions.

Rob Stavins:

Welcome to Environmental Insights, a podcast from the Harvard Environmental Economics Program. I'm your host, Rob Stavins, a professor here at the Harvard Kennedy School and director of the program. I've had the pleasure of including in these podcast conversations over the past five years a significant number of outstanding environmental economists. Some have been senior, even very senior as in retired, and some have been very young as in newly minted PhDs or assistant professors. Today we split the difference with someone who is senior in terms of his academic appointment but is from my perspective a relatively young man because today I'm joined by Professor Kenneth Gillingham. He is Professor of Economics at the Yale School of the Environment with secondary appointments in several other parts of the university. So welcome, Ken.

Kenneth Gillingham:

Pleasure to be on with you, Rob.

Rob Stavins:

So, before we talk about your research and its relevance for public policy, let's go back to how you came to be where you are. The feedback I receive from listeners to these podcasts consistently says that they find this part of the conversation interesting and even enjoyable. So where did you grow up?

Kenneth Gillingham:

I grew up outside of New York City in the suburbs of New York City near the city of White Plains.

Rob Stavins:

So does that mean you went to primary and high school in that area?

Kenneth Gillingham:

I did.

Rob Stavins:

And then you went on to college not terribly far away at Dartmouth.

Kenneth Gillingham:

That is correct.

Rob Stavins:

And you studied economics and environmental studies. Was both of those for your bachelor's degree?

Kenneth Gillingham:

I did. And I also spent some time in earth sciences. I actually for a while was an environmental earth sciences major really getting into the science side of things. And then at the very end, I had enough credits to switch over to environmental studies because I wanted to work on a thesis with a particular faculty member in the environmental studies department.

Rob Stavins:

I see. Who was that?

Kenneth Gillingham:

That was Karen Fisher-Vanden.

Rob Stavins:

Oh, my God. She was a former PhD student of mine.

Kenneth Gillingham:

She was, yes. So, I'm academically related to you.

Rob Stavins:

Yes, yes. My grandson. And then graduate school, you go on to Stanford and am I right, you got two master's degrees before doing the PhD?

Kenneth Gillingham:

That's right. Yes. I did a master's degree in the economics and finance area within Management Science and Engineering at Stanford. And while doing that, I also did a master's in Statistics.

Rob Stavins:

And then you went on and did a PhD in Management Science and Engineering.

Kenneth Gillingham:

That's right. And I spent my time, kind of split my time between the Economics Department, Management Science and Engineering Department, which was a really nice mix. It worked perfectly for me.

Rob Stavins:

And tell me what was your dissertation on and who was on your committee?

Kenneth Gillingham:

Yeah. So, I was working on understanding the consumer response to changes in fuel prices, which happens to be very relevant today.

Rob Stavins:

Yes, indeed.

Kenneth Gillingham:

And I was using some very large data sets to help us shed new light on this issue. I was working with a professor named Jim Sweeney in the Management Science and Engineering department.

Rob Stavins:

Yeah. I know Jim well.

Kenneth Gillingham:

I had John Wyant as well. Then I had Jon Levin, who now happens to be the President of Stanford. He was on my committee and a guy named Matt Harding, who's now a professor at UC Irvine.

Rob Stavins:

Well, it's an illustrious committee. Now the timing of your Dartmouth degree, I'm just looking at the years and your first MS at Stanford suggests that you took some time off school. Is that right?

Kenneth Gillingham:

I did, but I first forgot to mention. So, I also related to you through your friend, Larry Goulder, who I think was on one of these podcasts once. He was another member of my committee, and I definitely am remiss to neglect to mention him in my initial list because I spoke with him quite a bit.

Rob Stavins:

Yeah. Larry's great. And as you said, he's a very close friend of mine. So, tell me though, did you take time off between Dartmouth and Stanford or did you go directly after you got your degree to Stanford?

Kenneth Gillingham:

Great question. I worked for two years at a Think Tank in Washington DC named Resources for the Future.

Rob Stavins:

Oh yes, of course.

Kenneth Gillingham:

RFF, as it goes by, is a really special place, a great place to launch a career. I learned so, so much from people like Richard Newell, Billy Pizer, and others there, Karen Palmer. I worked with some truly excellent environmental and energy economists there.

Rob Stavins:

And Richard Newell is another former PhD student of mine. So, you're a grandson twice over, I guess. Now RFF is fantastic and it often comes up in these conversations that people spent some time there. I was actually… I spent 20 years on the board of directors, but that came to an end I think about six months ago. In any event, was the RFF period, did that turn out to be valuable for your research or for your studies I guess at Stanford?

Kenneth Gillingham:

It was an incredible experience actually. I was given the opportunity to really dive into research and learn how to do research at a higher level than you ever would be able to as an undergrad. As a full-time job working with truly excellent researchers you get deep insight into what it takes to do research and you also can answer the question, do you want to do research? Is this what you want to spend your life doing? And for me, the answer was yes. The answer was, this is amazing, amazing stuff that I'm doing. This is so interesting. And you know what? At the time I also was realizing that there was a lot I didn't know. Nobody knows everything, but I really felt that there was so much that I really wanted to understand more deeply and that inspired me to do the PhD. I'm not sure I would have done the PhD otherwise.

Rob Stavins:

So, it's important what you mentioned, Ken, namely that it's a value not just to know that you're good at something or find it interesting, but it's something that you really want to do.

Kenneth Gillingham:

Absolutely. A PhD is a huge commitment, and I think you really have to be inquisitive and really have to want to get down to the bottom of a problem in a way that no one else has. And that's something that a PhD enables you to do.

Rob Stavins:

Absolutely. Now before we turn to your current work in energy and environmental economics, I did notice in your bio that somewhere along the way you worked as a wilderness ranger in Wyoming and New Hampshire. So, when was that and what did you do?

Kenneth Gillingham:

That's right. So, you asked me the initial question of what kind of brought me into my environmental economics, what was my path? I actually began with an interest in the outdoors and the environment. My father would take me on hikes when I was a child and late in high school and in between high school and college I spent some summers, one in the White Mountains in New Hampshire, not too far away from you and another in Wyoming at Bridger-Teton National Forest that just across from Grand Teton National Park and had the opportunity there to see how forests are managed. I did a lot of hard work, hard manual work as well, but it also gave me a very interesting experience in thinking about the intersection between humans and the environment so that when I went to college, I was inspired to take more classes along those lines.

And that's actually what brought me to economics is I was realizing that the tools of economics are incredibly powerful for helping you understand how to manage appropriately manage the environment and also the effects of many different policies, actions, technologies, and what they might have, both on the environment but also more broadly on human wellbeing.

Rob Stavins:

Now, did you also serve as a senior economist at CEA for a couple of years?

Kenneth Gillingham:

I did. So, that was later. I joined Yale after I left Stanford in 2011. And I served as a senior economist in 2015, 16. However, I also served as not a senior economist, but as an economist for six months at the CEA while I was in graduate school. I had an opportunity to work there when Richard Newell was the senior economist.

Rob Stavins:

Yep, yep, yep. So, you became an assistant professor at Yale in 2011 and you've been there ever since. So, you're a lifer at Yale like I am actually at Harvard.

Kenneth Gillingham:

So far I am, 15 years.

Rob Stavins:

You say so far. So, are you considering a move?

Kenneth Gillingham:

No, I'm very, very happy here, but you never know what happens in life, of course.

Rob Stavins:

Yeah. Right. Well, you really conditioned that answer. That was very good. So, let's turn to your work at energy and environmental economics and policy. If you had to explain the core economic case for climate policy to someone who is skeptical but open-minded and you had two minutes to do it, what would you say?

Kenneth Gillingham:

That's a great question. What I'd say is, how does weather influence your life? How does extreme weather influence your life? And to almost everyone, extreme weather really does influence your life, whether it's a terrible heat wave, whether it's a hurricane, whether it's a storm. If you're a farmer, whether it's influencing your crop yields and climate change will change the weather, of course, over a long period of time because it is about climate, not weather, but it will change what you experience in any given day. So, it's something worth paying very close attention to and caring about.

Rob Stavins:

Okay. You convinced me. So, like many of our colleagues, you've worked on carbon pricing mechanisms. I'm wondering in the U.S. political context, would you say that carbon pricing is still viable or has the policy world effectively moved on? And in saying this, I'm not talking about necessarily the Trump

administration right now, but rather I'm thinking of the previous Biden administration, which didn't rely on carbon pricing. The Inflation Reduction Act was almost 100 percent subsidies with the exception of the small methane fee. So, do you see this as a viable option going forward, either carbon taxes or cap and trade for the U.S. or is that something from the past?

Kenneth Gillingham:

I believe it has to always be on the table, and we as environmental economists must do everything we can to keep it at least on the table. I do recognize there are real and very strong political forces that work against carbon pricing, but I don't believe that it's a foregone conclusion that we will never have carbon pricing. I do recognize that it's somehow often politically easier to give subsidies than it is to tax someone, but as we've seen with the One Big Beautiful Bill, those subsidies may not be that durable either. And at the end of the day, the logic of carbon pricing is so powerful and so strong and the evidence behind it where we've seen it working in so many places that it has to remain on the table.

Rob Stavins:

So, I of course agree with you, but when you use the word logic, I think of the political logic from the perspective of someone who has been elected to office and would like to get reelected, the political logic of a subsidy I think is stronger than a tax because politicians, elected politicians like to give out benefits. They don't like to give out costs to their constituents. And you're suggesting we're going to get beyond that.

Kenneth Gillingham:

Well, I see us entering a phase where we have been spending a lot of money over the past several decades that is all entering into our national debt and we do have a set of very, very highly valued, I'll call them government services, whether we're talking about Social Security, we're talking about Medicaid, whether we're talking about even our national defense that people kind of hold as rights almost that are not going to be changed and at some point we're going to have to be raising additional revenue. And so, the question comes about, are we going to be cutting things that people really value? Are we going to be raising income taxes, which is very politically unpopular, or are we going to be putting in place a carbon tax that given you could use those revenues for many different things but does provide revenues and if you auction off permits in a cap and trade system, it also can provide revenues.

So, I think I don't know at what point we're going to get to the place where we're going to be able to see this become more politically viable, but I believe there is a place for it.

Rob Stavins:

And so if I understand you, what you're saying is that the way in which the political resistance to carbon pricing could be worn down is not by someone saying, “Oh, this is the most cost effective way to achieve climate policy,” but is because of budgetary needs and needs for new sources of revenue.

Kenneth Gillingham:

Exactly. It builds that along… You need to build a coalition, and you're going to have a set of people who say, “Look, this is going to help us address climate change.” It may also have co-benefits and help us address a set of other co-pollutants, reduce asthma cases, et cetera. And of course it's not the direct way to do that, but it will do that as a co-benefit. And you put all of that together along with those who say, “We're desperate, we need new revenues, we are in a tight budget situation.” It's possible, I believe, to build that coalition.

Rob Stavins:

Well, it's good that you bring up those correlated pollutants because they are extremely important. I did some back of the envelope analysis as they say using the Obama era regulatory impact analysis on the clean power plan and for the year 2030, 94 percent of their estimated domestic benefits were reductions in PM2.5, not averted climate change.

Kenneth Gillingham:

It's amazing, isn't it? Yeah. It's that the damages from PM2.5 are extremely large and I mean, it gets even larger when we're looking at developing countries. In the United States, our levels are quite modest compared to what they are say in India or in many developing countries where it's quite extreme, but those add up to real mortality and they add up to real asthma cases and real hospital emissions. And so, when you bring all of those pieces into the puzzle, you can build, I believe, a pretty strong case for regulations, hopefully cost-effective regulations and ideally economically efficient regulations that can really improve wellbeing.

Rob Stavins:

So, we've been talking essentially about tradeoffs between efficiency or cost effectiveness and political feasibility. Let's turn to another tradeoff that's important and that's efficiency or cost effectiveness versus distributional equity. Now climate policies can have uneven impacts on both the benefit side and the cost side. So, what do you see as the most effective ways to address distributional concerns of a climate policy without undermining its cost effectiveness?

Kenneth Gillingham:

That is a million-dollar question or maybe billion-dollar question because it really is tightly, tightly linked into that political feasibility question that we brought up before. When you can make an argument and I've seen this argument that carbon pricing is hurting poor people. We can look at protests around the world, whether we're talking about France or others… You raise fuel prices, you really do cause quite a bit of unrest. And I think that that has to be addressed, but the key thing for carbon pricing to work, you maintain the price. You don't just give the money back directly. You would have to find ways in which there's still an incentive for everyone – low income, middle income, high income – to reduce emissions. They still face that price, but you can redistribute some of that revenue back in a way that is means tested or related otherwise to income.

Rob Stavins:

Which is done, for example, in California where by statute there's a requirement that I think it's 40 or 42 percent of the auction revenue from the cap-and-trade system must go to disadvantaged communities in a variety of ways.

Kenneth Gillingham:

That's exactly right and that I think has actually helped greatly with the political feasibility of the policy in California.

Rob Stavins:

It certainly has. Now there's another issue that's related to this, to fairness, and then how do you think about, or how would you tell our listeners suggest that they think about fairness between current and future generations in climate economics?

Kenneth Gillingham:

This is another really great and excellent question. You're obviously referring to intergenerational equity, which boils down to a single parameter, the discount rate. That's what we environmental economists do is focus a lot of effort and emphasis on this discount rate. But actually we can get into a deep question about this discount rate, but I want to broaden it and say that this is also something where when you're having that two minute conversation about climate change and why we might want to care about climate change, I think intergenerational equity is a pretty powerful tool as well. People care about their children. People care about their grandchildren in a very real and deep way and that goes outside the numbers and outside all the details that we as economists spend our time talking about. But I think it's worth recognizing that as well. On the economic side of it, I personally believe that the evidence has built up quite strongly in the past, I'll go with decade, that we were discounting too heavily, which means we were not valuing the future appropriately or as much as we should in many analyses we had been doing of climate change for quite some time and that there's a strong argument that there's a, what you could call a declining term structure of discount rates.

I've written about this, and Richard Newell and I think you've written about this as well. And I think the upshot of that in straight terms is that the economics is telling us that we really should value the distant future in a meaningful way. Of course, we do discount it for sure, but it can be valued in a meaningful way, and when you incorporate that into the types of analyses that we do to understand what optimal carbon policy might look like, we find that it means that you should do more today.

Rob Stavins:

No, that's very helpful. Thank you for that. Now you've worked both in academia and in policy spaces a couple of times at least. Where do you think academic research most often just misses the mark in terms of influencing real world decisions?

Kenneth Gillingham:

When I went to the White House, particularly the second time when I went there in 2015, 2016, I went in… I was deep in my research and went in with this thought that we know so much, everybody's working on everything. Every time I had an idea to do something, it seemed that someone was working on it. And then I went into the policy world and spent that time at the White House and heard the questions that policymakers had and realized that there are an enormous number of problems that the academic community is not looking at, not considering at all. And I think that there are a set of environmental economists in particular who have been thinking about this recently and have been trying to align their work to be more useful to policymakers, but there often is a gap and what is that gap? What's the nature of that gap?

The nature of that gap is that it's very, very easy if you have a problem set, you've been doing problem sets, I guess, as a graduate student, so you've been doing problem sets, you have these sets of tools, find a data set and you look for the key under the lamppost, right? You do what seems straightforward. And what I really, really admire is when people say, “This is a really hard problem out there. Policymakers are grappling with it. Let's try to tackle it. Let's do everything we can. We may not even have the best data to do it, but let's go out of our way to try to find the data, to try to find the tools to answer that problem.” And so getting back to directly answer your question, I think the answer to your

question, in my view, is that economists and academics in general have a tendency to do what is the next logical, seemingly logical simple thing to do that's straightforward and not always step back and think, what's going to be the most useful?

Because our time at the end of the day is the most valuable thing and what we spend our time on, how we actually allocate our research effort is crucial.

Rob Stavins:

Yeah. No, that's very, very helpful. I mean, now that you're a tenured faculty member for quite a time, you have the freedom which perhaps you are, and I know I did not feel I had before tenure, that when a problem comes along, rather than trying to address that problem in a way which is also going to advance the methodological frontier through a really innovative identification strategy, now if I see a problem post-tenure and it's really just some very simplistic thing, it just might be add addition and subtraction or simply a logical statement, then we're free to do that, which I'm not sure that we feel free to do at an earlier academic stage of our careers.

Kenneth Gillingham:

I think that's exactly right. I faced those same pressures. I happened to sit in a School of the Environment that gave me a little bit more flexibility and encouraged me to have impact, but I also felt exactly those same pressures, and I think those pressures are even more severe for those in a pure disciplinary department.

Rob Stavins:

Yes, I agree with that as well. So, listen, let's think now about the future as we come to the end of our conversation. If we revisit this conversation in 10 years, what would have to happen in the meantime for you to say that climate policy has largely been a success?

Kenneth Gillingham:

Well, I'm not incredibly optimistic that I'm going to be able to say in 10 years that climate policy has been a success, but I think that there's real meaningful action that can be taken that can be successful action. There's a distinction there.

Rob Stavins:

What would be the time period in which you think it might even be conceivable that you could say, “Oh, climate policy has been a success.” I hope it's not beyond your lifetime, but I don't want to force any answer on you.

Kenneth Gillingham:

I hope so too. Maybe 20 years, maybe I don't see it in the next 10 years.

Rob Stavins:

Okay, that's helpful.

Kenneth Gillingham:

But I could see it in 20 years. A lot… When I think back about 20 years ago, I mean, I've been a professor now for 15 years and think back about both where the academic intellectual evidence was 15 years ago

or go back to 20 when I first started studying this. I've been studying this topic for over 20 years now and I think we've come a very, very long way. So, I do believe that in 20 years there's room for action, but I'm much less optimistic about the next 10 years. And gosh, I hope it happens before the end of my lifetime. But to answer your question, what would it take? I think it would take either, and either there are two paths, either some innovation and there are a lot of possibilities that comes along that effectively without a carbon price ends up changing our energy system in a fundamental way, such that it is the most economic approach to generating electricity or otherwise powering our economy and it basically takes over. It has enough flexibility and it might be maybe more than one technology. It may be a combination of technologies that it just becomes a no-brainer. And this gets back to innovation and you have had some very, very influential work on innovation. I teach it in my own class, but I think innovation is a key part of the puzzle. There are real innovation market failures. And so, I think that that one path towards saying we've made some success or seen a real change would be on the technology side. That said, another path which I think would lead to more reduction sooner would be a durable price on carbon that would maybe incentivize the innovation that could be happening over a long period of time.

And at the end of the day, getting back to some of your own work on a tale of two market failures, you might want to see both. You have two separate market failures, and they each lend themselves to a separate policy.

Rob Stavins:

Right. I mean, you're mentioning that if there's some incredible technology that we can't even conceive of now perhaps that comes along that comes down from heaven, it actually reminds me a bit of, you know that famous cartoon of two professors at a blackboard with a ton of math and then there's dot, dot, dot, and it's written down, and then a miracle occurs.

Kenneth Gillingham:

That is one of my favorite cartoons.

Rob Stavins:

Yes, exactly. So listen, finally, I just want to ask you for younger members of our audience, so now you can think about 20 years out or 40 years out if you want, but for the younger members of our audience, of which there are many, what advice would you give to someone who is considering studying environmental economics?

Kenneth Gillingham:

Do it. It is a fascinating, amazing field that draws together knowledge across a broad range of disciplines. It is an economics field but it's not just economics. You need to know much more, and that just keeps it incredibly interesting. Regardless of whether we have had the miracle happen or not in 20 years, we're still going to be studying environmental economics. There are an endless number of tradeoffs that will always be made. This field will always be relevant. And so, if you're interested in the environment and if you're interested in thinking carefully about tradeoffs and understanding how policies actually work in the real world and influence wellbeing and welfare, I would say that environmental economics is a great path to take.

Rob Stavins:

That is a wonderful response and it's a wonderful place to end our conversation. So, thank you very much, Ken, for taking time to join me today.

Kenneth Gillingham:

Thank you very much. I've admired your work for many years, Rob, and it's an absolute pleasure to speak with you.

Rob Stavins:

Oh, well, thank you. So, my guest today has been Professor Kenneth Gillingham, Professor of Economics at the Yale School of the Environment. I hope you will all join us again for the next episode of Environmental Insights: Conversations on Policy and Practice from the Harvard Environmental Economics Program. I'm your host, Rob Stavins. Thanks for listening.

Announcer:

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