TRANSCRIPT
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Guest: Larry Goulder
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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 Environmental Economics Program and our Harvard Project on Climate Agreements. As listeners will know in these podcast episodes I engage in conversation with leading experts from academia, private industry, government, and NGOs, with our focus always on environmental economics and policy frequently within the realm of climate change policy. Today, we're very fortunate to have with us someone who is very well qualified to talk about the economics of climate change policy, my longtime colleague, coauthor, and very good friend, Larry Goulder, the Shuzo Nishihara Professor of Environmental and Resource Economics at Stanford University. Larry, welcome to Environmental Insights.

Larry Goulder: Thanks Rob. I'm very happy to have this conversation.

Rob Stavins: So, I'm very interested to hear your impressions about the economic dimensions of environmental and climate change policy. But before we talk about that, our listeners are always interested to hear about how you came to be where you are and where you've been. So we're going to go way back, let's start with, where did you grow up?

Larry Goulder: Grew up in Shaker Heights, Ohio, relatively affluent suburb of Cleveland. Stayed there through high school.

Rob Stavins: So primary school and high school in Shaker Heights.

Larry Goulder: Mm-hmm.

Rob Stavins: And then you went on to college at Harvard. Is that right?

Larry Goulder: That's right.

Rob Stavins: And what did you study?

Larry Goulder: Well, I majored in philosophy and I think that's something that you, Rob, and I have in common. That partly served a need, a desire to understand better what it is that we know; what we can be assure of; what's the relationship between reason and faith? So it answered a lot of deep questions for me, even though I never was intent on becoming a professional philosopher.

Rob Stavins: I'm curious, did you take any economics courses in college?

Larry Goulder: Yes, I did. Knowing that I might end up doing something other than being a professional philosopher, I took a fair amount of math and some economics on the chance that I might ultimately do graduate school in economics, but I should say, my interest in economics was really a means to an end, that is, I was very interested, starting in high school and then through college, in environmental and energy problems, but I came to believe, and I still believe, that economics has a great deal to say about how to evaluate different policy options for addressing environmental and energy problems.

Rob Stavins: Now you have another long-term interest, and when you graduated from Harvard College in 1973, I believe, you went off, was it immediately you went off to Paris?

Larry Goulder: Well, actually it was after a year, but during college I took a number of courses in music composition and theory. And then I was fortunate enough to be able to go to Paris for a year after a year working at the Department of Energy actually, to study music composition with a wonderful teacher, Nadia Boulanger, who's just has been a wonderful force in my life, someone whom I continue to think about. And I never was intent on having music as a career, although I entertained the option that if I absolutely became overwhelmed with the power of music and had to do it, I would make it a career, but it was more something that I felt would be wonderful training, a wonderful investment, and something I could continue to do on the side after that year in Paris.

Rob Stavins: Which you've done. And Nadia Boulanger was really one of the greats of the 20th century, wasn't she?

Larry Goulder: Oh, I think she was just a real phenomenon. She was a friend of, and associate with Stavinksy. George Gershwin actually went to her. Quincy Jones, famous jazz composer and performer. She was very much connected with Aaron Copland. So I feel very fortunate to have encountered her at all.

Rob Stavins: So after some wonderful time in Paris, what was the next step Larry?

Larry Goulder: Well, then I went and got my PhD in economics. I went to Stanford and focused on economics, but with an interest in energy and environmental economics, because my principle interest was to use economics as a tool for addressing important environmental and energy policy issues.

Rob Stavins: And then what was your first job after completing the PhD in economics at Stanford?

Larry Goulder: I went from there to Harvard, which is where I had gotten my BA, and I entered it as an assistant professor at Harvard focusing on environmental economics and also on tax policy or public economics, a marriage of the two.

Rob Stavins: So, let's turn with that having established your considerable background, let's turn to talking about economic dimensions of climate change policy. Larry, you co-authored with Marc Hafstead, a really excellent book that I'm going to highly recommend to our listeners, "Confronting the Climate Challenge: US Policy Options," published by Columbia University Press in 2018. Can you give us a brief overview, by which I mean the scope of the book, your key methods of analysis, and perhaps one or two of what you think are the most striking insights or conclusions in that book?

Larry Goulder: Sure. And thanks for the plug by the way. The book focuses on options for US climate change policy. I might add that the book came out, I think at the end of 2017, or early 2018, not an opportune time in terms of the politics for US federal level policy. But what we do is we outlined four, or we analyzed four policy approaches, general approaches – a carbon tax, a cap-and-trade, a federal level cap-and-trade system, increase in gasoline taxes, and also a Clean Electricity Standard. And we show the merits and demerits of each using what is called a general equilibrium model, which means it's a model of the US that accounts for the interactions across the many industrial and agricultural and other sectors, power sector, of the US all in a comprehensive way. Looks at their interactions with labor markets and capital markets and the government sector.

And it also is a model that looks at the impacts over time. So, the basic strategy is this: We first look at where the world might go in the absence of any policy change. And then we simulate policy options by introducing on the computer some changes to the world, whether it's a carbon tax, or it's cap-and-trade system, et cetera, and see where the world would go under those circumstances, and compare that with the status quo.

Rob Stavins: And this is all done with a computable general equilibrium model. Is that right?

Larry Goulder: That's right. Which looks at the impacts over time, not only for production and incomes, but also for emissions of various pollutants, including importantly, carbon dioxide. And then we draw our conclusions as to which of the different policies can achieve various goals at different costs and come up with some rankings of the policies in terms of their cost effectiveness.

Rob Stavins: Was there anything in terms of what you found and report in the book that actually surprised you?

Larry Goulder: Well, one of the things that stands relates to the relative costs of the different policy options that we consider in the book. Economists tend to favor price-based approaches like cap-and-trade, or a carbon tax on the grounds…

Rob Stavins: That's true.

Larry Goulder: ... that they would be the most cost-effective. And let me go on record as saying that based on the results in our book, as well as some other work, I do share that perspective. One of our results is that a Clean Energy Standard can also do pretty well in terms of cost-effectiveness despite the fact that it's less flexible. And the reason it does pretty well are a bit technical, but they have to do interactions between this policy and preexisting taxes in the US economy, and this is something we focus on a lot in our book and in some other work. I think this result's quite relevant to current policy discussions since today there's a lot of focus on the CES, the Clean Energy Standard, as a way of addressing climate change. And even though our results tend to favor a carbon tax, we find that the CES could do pretty well as well.

And a second result that stands out relates to the carbon tax. It's the finding that this policy need not be regressive in its impact, that is, it need not produce a larger economic burden relative to income on lower income households than on richer households. And one reason is that the revenues could be recycled through a dividend check of the same amount to every household, might be hard to reach certain households, but to the extent that you can reach to them, such a check would represent a bigger injection of income for a low-income household and for a richer one. And that means that this method of recycling has a progressive impact, which would offset, we find, any potential for regressivity. But what surprised us is it's not even necessary to recycle the revenues this way for the overall impact to be progressive. Even if the revenues were to be recycled through across-the-board cuts in individual income tax rates, we find the results are mildly progressive.

This also reflects certain features of the US tax system and US transfer system, which I, again, won't get into to keep things brief, but based on the results from the book, as well as other work with my collaborator, Marc Hafstead, and by others, including Gib Metcalf of Tufts University, he's done some great work in this area and used to work with the Obama Administration. While I do think it's really important to think about how the benefits and costs of a carbon tax could be distributed across different demographic groups, we just don't find that there's a solid foundation for the view that a carbon tax would be regressive. So, that's the second finding that I think really stands out.

Rob Stavins: I'm sure you recognize that the economists first best approach of cutting distortionary taxes with the revenue from a carbon pricing system has not been the favored approach, only one jurisdiction that I know of, British Columbia, started with that and then they departed away from it over a period of years, rather the interest seems to be in terms of some kind of lump sum payments, sending out checks with a return address of your congressmen and the like, at

least in the bills that are now in the Congress and have been over the past few years.

Larry Goulder: Well, this is a very important issue, and I'm going to push back a little bit though, Rob, on what you might be suggesting. In California, the cap-and-trade system involves some auctioning of the emissions trading allowances, and some allowances are given out free, but more than half of the allowances are auctioned out, which brings in revenue. What I want to emphasize is that bringing in revenue can be very important to lowering the overall economic cost. And I don't think your example in British Columbia entirely refutes that. And let me explain why. In California, the revenues are now being used not to cut pre-existing tax rates directly, but in fact, to pay for a bunch of other projects, including financing high-speed rail, clean air programs, affordable housing, many other projects, and indeed they're not using the revenue directly to cut taxes.

So does that mean that this idea that recycling revenues can save money by allowing the taxes to be cut? Well, I think still indirectly what is going on in California does involve a reduction in tax rates. Why? Because if the government was intent on spending on the various programs it is spending on, like high speed rail, clean air, et cetera, it means that now the government does not need to raise tax rates in order to finance these expenditures. It means that indeed there is a benefit here that tax rates are going to be lower because the government has availed itself of this other source of revenue.

Rob Stavins: So I wanted to turn more to policy now and more recent, I guess, real world policy. From 2016 through 2020, I believe you were quite critical of a number of the Trump Administration's moves in the environmental energy and climate domain. Is there anything actually positive, and you don't have to, I'm just curious, is there anything positive about that administration's actions in the environmental realm that you would want to take note of?

Larry Goulder: The fact that I need to pause, I guess, is indicative. I can't find much positive quite frankly.

Rob Stavins: Yeah. Okay. I guess one is what they didn't do, it seems to me. One is that they did not make an attempt to overturn the Endangerment Finding from the Obama Administration, rather just to look at specific regulatory actions that were carried out by the Clean Air Act under it. And the other actually is the Kigali Amendments were then implemented with HFC elimination legislation, I guess it's rarely known, but it was during that administration and the president signed it. But let me ask you something that's an easier question to address, what's the single worst thing the administration did in your judgment in the environmental realm? When I say the single worst, I mean in the sense that even with an effective Biden Administration action, the effects are going to be long lasting.

Larry Goulder: I think that the reversal or elimination of some of the Obama efforts was very problematic. In particular a signature effort by the Obama administration was the Clean Power Plan, which would try to put limits on the emissions of CO_2 per unit of electricity [generated] by power plants throughout the US. I think dismantling that is a real problem. It doesn't mean that one can't go back to installing it, but I think there are long-term effects of that. I must say also just the general tenor of the Trump Administration to deny the science and to deny, in particular, the idea that there is serious human-caused climate change is very problematic to the extent that it reinforces political opposition to dealing with this immense problem.

Now, of course you can change people's minds and there is a trend for the public to become more and more concerned and convinced that action needs to be taken, but you still delay the action by feeding doubt, which is what the Trump Administration I believe did, it's part of a broader problem of creating suspicion about the science, about thinking of scientists as in some sense elite individuals who have no real connection with what's going on in the world.

Rob Stavins: So I think you highlight something that's very important, it's just the lack of attention to evidence-based policymaking to scientific expertise including the best economic expertise. I think in terms of the Clean Power Plan, although it was an important policy and you referred to Clean Energy Standards going forward as a somewhat of a partial substitute for that, it's good to keep in mind that the clean power plan was stayed by the US Supreme Court during the Obama Administration before the change in the makeup of the Supreme Court. And because of its legal problems that brought that about, the current administration has not even considered trying to put in place a regulatory approach like the Clean Power Plan, that's why there's all this interest in a Clean Electricity Standard now.

Larry Goulder: That's absolutely right.

Rob Stavins: Yeah. So you're very familiar with analytical methods like benefit cost analysis. They've been part of the regulatory process since the Carter Administration. What do you see as the role for these methods? Is it important going forward, or is that a sideshow nowadays?

Larry Goulder: Well, I think there are really two questions here. One is whether benefit cost analysis has strong standing analytically, whether it's meaningful, what results you get out of it. And on that dimension, I would say emphatically, yes, it's very valuable to be able to observe your benefit cost analysis, whether in the aggregate the benefits from the policy involved exceed the economic or other sacrifices or costs. Of course, it's only an aggregate measure, but I think it still has some normative weight to know that the benefits exceed the cost. Partly because if the benefits exceed the cost that suggests that those who would benefit could in principle compensate those who would not benefit, and there would still be something leftover. To actually do that in practice is difficult. That

said, I am not suggesting the benefit cost analysis is the single normative criterion or approach that should be used to evaluate policy.

As you very well know there's great concern, well-deserved, about the fairness question and about the ethics associated with different policies. Environmental justice has become more and more of a concern deservedly so. So I think that whatever you get out of benefit cost analysis, before one makes a policy decision, one also has to look at how the benefits and costs are distributed. What are the ethical implications of that? And hopefully design the policy in a way that addresses closely the ethical concern. And by the way, one thing that comes out of our book is that there usually is a trade-off. That indeed, if you can compensate or redesign the policy in a way to deal with distributional or ethical concerns, you usually pay a price in the sense that the aggregate net benefits tend to be a little bit lower, but I would argue that in many cases that's the price very much worth paying.

Rob Stavins: So can I summarize what I think your perspective is, that benefit cost analysis and the Kaldor-Hicks criterion is neither a, you would see it as appropriately being neither a necessary nor a sufficient condition for a good public policy, and yet being extremely useful as an additional information into the decision-making process. Is that a fair characterization?

Larry Goulder: I think it's fair. I think you put it very well. One thing I would add is that there are some who have aimed to introduce, or integrate, within benefit cost analysis concerns about fairness or distribution, by changing the weights associated to who benefits and who doesn't benefit. My view is that that is not a helpful approach. Much better to keep benefit cost analysis in the form it is, you mentioned Kaldor-Hicks, then it has this nice Kaldor-Hicks feature, but then to accompany it with considerations of the distributional effects, with ethical considerations, also with political feasibility considerations. And sometimes when people ask me what I do, I'm tempted to say I'm an environmental economist, but I'm also tempted to say I'm a public policy evaluator. And which means that when I present different policy options, I try to pay attention to the combination of cost, political feasibility, and fairness that is associated with each option.

Rob Stavins: So we've been focusing our conversation on US climate change policy, where you've done so much work, but in recent years you've been modeling and studying the Chinese emissions trading system in which as it so happens the trading was launched just last month. Now, not all of our listeners may know that it's not a cap-and-trade system; it's a tradable performance standard. Can you explain to us the difference between the two approaches and tell us about any concerns it raises in terms of its efficacy or its cost?

Larry Goulder: I'm glad you asked about the China issue, or the China effort. It's very exciting. It's really important. This is going to be the largest emissions trading system in the world; it will more than double the amount of carbon dioxide covered by emissions pricing. And it is also using an approach that has some attractions in

terms of keeping costs down, it's going to be nationwide. So implies that there'll be opportunities to exploit the, as it were, low hanging fruit, by considering opportunities for emissions reductions throughout the nation. And as you just mentioned, it's not a cap-and-trade system, but it's a tradable performance standard. So to get to the center of your question, what's involved there? How does it work? Well, how it works is that each of the covered facilities, so for example, in the first phase, a covered facility will be electric power generator of which there are about 2,500 of them in China that will be covered. They have to keep the ratio of their emissions of CO_2 to their level of electricity production. That intensity or ratio must not exceed a government issued benchmark or standard.

And if there were no trading, then each facility would have to keep the ratio below that. But in fact, there is some opportunity for trading, but still there is a fundamental difference with cap-and-trade. With cap-and-trade the government issues a certain number of emissions allowances, may auction some as well, but the total number of emissions allowances is given by the regulator. In contrast, under a tradable performance standard, the number of emissions permits or allowances is a function of output, is a function of the, let's say intended output like electricity, because all that you're required to meet is a ratio of emissions to output. The total number of emissions you're not regulated by.

So for example, if an electric power plant is just in compliance with a given level of output, let's call it a hundred, and now it doubles its production of electricity, it will be issued twice as many allowances. So the number of allowances in circulation is a function of the producer's choice of output, and that's a fundamental difference. And it turns out that difference is very important because in effect under the tradable performance standard the level of output is in effect being subsidized, because you can get more allowances if you increase your output. And the fact that if you reduce your intended output, you lose allowances, that's an impediment to your using reduced output as a way of reducing emissions.

So as it turns out, the tradable performance standard approach used in China is somewhat less cost effective than would be an equivalently scaled cap-and-trade system. Having said that, I think it's a tremendous step forward that China is taking this national level effort, that it's employing a tradable system, and that it's intent on achieving very significant reductions. Indeed Xi Jinping has indicated the goal of making the country carbon neutral before 2060, and the tradable performance standard is estimated to achieve 50% of the reductions that China will need to make. So this is a big deal and it's much less costly than would be the case under strictly conventional regulation. So I'll take this half a loaf.

Rob Stavins: So that's a very good positive point on which to bring our conversation to a close, because of time. Our guest today has been Larry Goulder, the Shuzo

Nishihara Professor of Environmental and Resource Economics at Stanford University. Larry, thanks for being with us today.

Larry Goulder: Thank you, Rob. It's a pleasure.

Rob Stavins: And please join us 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.

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