TRANSCRIPT
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Orley Ashenfelter: Grapes are very sensitive to growing season weather. And we distinguish climate as the long-term outcome of weather. And the weather itself changes from year to year. We're already seeing some quite remarkable things happening.

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 Harvard Environmental Economics Program. Today, we're very fortunate to have with us Orley Ashenfelter, the Joseph Douglas Green 1895 Professor of Economics at Princeton University. In his truly remarkable career, he has served as the president of the American Economic Association, the American Law and Economics Association, and the Society of Labor Economics.

Rob Stavins: In addition to that, he was the editor of the American Economic Review for an astounding 16 years. He's a member of the National Academy of Sciences, and a distinguished fellow of the American Economic Association, the American Academy of Arts & Sciences, and the Econometric Society.

Rob Stavins: Although he is very well-known for his extensive research and writing in labor economics, econometrics, and law and economics, for those of us who are wine aficionados, he is celebrated for his pioneering work on the economics of wine. So in addition to all of those previous positions I just mentioned, for purposes of today's conversation, it's important for me to note that he is also the current president of the American Association of Wine Economists and my fellow co-editor at the Journal of Wine Economics. Orley, welcome.

Orley Ashenfelter: Great pleasure to be here. I wish my mother could have heard your introduction.

Rob Stavins: So, before we talk about your research and your current thinking about wine economics, including but not limited to the relationship between global climate change, grape growing, and wine production. I'd like to go back as we always do in these podcasts to how you came to be where you are. So, Orley, where did you grow up?

Orley Ashenfelter: I'm actually from a working class... Well, I was born in San Francisco, but I grew up in National City, California, which is just south of San Diego. It is actually north of the Mexican border, working class town.

Rob Stavins: And is that where you went to primary school and high school?

Orley Ashenfelter: I spent a little time in North Dakota as a child, but yes, mainly high school and primary and middle school were spent in lovely old Sweetwater Union High School, honed to many, long history of immigrants.

Rob Stavins: And then you went to college also in Southern California, at Claremont McKenna. Is that right?

Orley Ashenfelter: Yes. It was actually called Claremont Men's College back in those days.

Rob Stavins: Oh, okay. And you graduated. Did you go directly onto graduate school at Princeton?

Orley Ashenfelter: I did.

Rob Stavins: You did. And there you received the PhD in economics. So what was your dissertation topic and who was on your dissertation committee?

Orley Ashenfelter: Somewhat asked me about this the other day. It'll sound incredibly modern. I wrote on the economics of discrimination.

Rob Stavins: Really? Okay.

Orley Ashenfelter: Yeah. Three essays, one of which actually is one of my very favorite papers. It's a paper that you rarely write a paper like this, a paper that kills the subject. In other words, it was a finding. And the finding was substantial enough that there really never was any further research. It was on the effect of trade unions on racial income differences.

Rob Stavins: Oh, interesting.

Orley Ashenfelter: And it involved measuring the effect of being in a union on the wage rates of Black workers and white workers, but also more importantly, measured the fraction of people that were in unions that were Black and the fraction of people who were white. At the time I wrote that, that was not known. So they were many arguments over a simple fact. All you had to do was count, in principle.

Orley Ashenfelter: And turns out that the fraction of Black workers unionized is about the same as the fraction of white workers at that time. So, if anything, evidence that trade unions probably narrowed wage gaps and that more or less brought that subject to a close. As far as I know, no one ever wrote about it again.

Rob Stavins: That's interesting. And who was on your committee? Your dissertation committee?

Orley Ashenfelter: Well, it would've been Albert Rees, who came to Princeton late from Chicago, Steve Goldfeld, and probably Dick Quandt, a couple of econometricians and a labor economist.

Rob Stavins: Right. And then for your first job out of graduate school, was that indeed as an assistant professor of economics at Princeton?

Orley Ashenfelter: Yeah. Something we would never do today, I don't think, but yeah, the department, it's interesting, there's a little history here. Princeton didn't really have an economics department until about 1960. It was at that time the Department of Economics and Sociology, and the university decided to finally try to compete with Harvard and have an actual economics department and attracted... Well, a lot of very famous people. Dick Musgrave, Fritz Machlup, Arthur Lewis, some others, and started up the department. So it was a very unusual moment really, when I was hired.

Rob Stavins: And something that you and I have in common is that the institution where we did our PhD, we became an assistant professor, and then we never left, except I guess for government service and sabbaticals. That's correct of you, isn't it?

Orley Ashenfelter: It is. Yes.

Rob Stavins: Yeah. So you voted with your feet. You love Princeton.

Orley Ashenfelter: Well, I had a special arrangement, this industrial relations section, which has spawned so many wonderful graduate students over the years, and so much research, was a very special place. And the economics department was always very welcoming. But it was growing. I was in the right place at the right time you might say.

Rob Stavins: Right, right. I mean, when I speak with people in these podcasts over and over again, that concept comes up, that they happen to be in the right place at the right time. And I would say that also about myself. So much of life indeed are coincidences of just showing up, as someone once said. So before we turn to the relationship between climate change and the wine industry, what I would really love Orley, would be if you could share with our listeners your really pathbreaking and at one time controversial work in which you would predict the quality of specific vintages of wine, such as the 1982 vintage of Bordeaux, for example, without ever tasting the wine, via early barrel samples as a wine critic, like Robert Parker might do. Can you explain that please?

Orley Ashenfelter: Actually, even the best wine writers, historically they're British, they used the weather that produced the grapes as a pretty good guess as to what the overall quality of the vintage was going to be. What I did was to quantify it. I read a

book by Edmund Penning-Rowsell on Bordeaux wine. I met him, actually. I stayed with him once. He's a very interesting man.

Orley Ashenfelter: He was a wine writer for the *Financial Times* and almost a... I wouldn't say a communist, but certainly very left of center. I always asked him what in the world he was doing writing for the *Financial Times* about wine, and his answer was always, "We can't let the Tories drink all the good wine. We have to have some of it for ourselves." He had collected some data and he had an insight in an appendix to his book.

Orley Ashenfelter: And I read it and then learned a little bit about grapes and realized that you could probably predict the wine quality, but the special breakthrough that I found was in England at that time especially, the older wines were sold at public auction. So you actually had a measure, a quantitative measure of what after a decade had passed the quality of the wines was thought to be because these prices reflected that.

Orley Ashenfelter: And then I basically set out a simple model. It turns out it's a nice model and people use it a lot because it's the weather that determines the prices, and no one has any concern about causation running the other direction. So this is a very simple example of causality, and really, most farmers would know this too. You need to get the grapes ripe, so that typically means a warm summer. Grapes are very sensitive to rainfall.

Orley Ashenfelter: So, you don't want rainfall at the end of the growing season, and then unless you irrigate, you'd like to have a lot of rainfall in the winter to bring the water table up. It's important to remember, grapes really come from the Middle East and they can grow where people can grow. They don't need much water, once they've gone down far enough. So those three things tell you what the quality potential is, and then of course the reason that people would go, especially the Brits, would go and sample the wines was because not all winemakers do a great job.

Orley Ashenfelter: And there could be a flaw that occurred, and there are many, many ways that wine can be flawed. So many chemical problems that can occur. So they would then sample them. In fact, in the old days, the Brits would often buy the wine in casks and barrel it in England, [inaudible] bottle it in England, because they of course didn't trust the French to bottle the same wine that they had selected.

Rob Stavins: Right. The most climate-sensitive sector of virtually any national economy is agriculture. And as you just noted of the many agricultural crops, surely one of the most sensitive to the climate is grape production, both in terms of temperature, precipitation, humidity, particularly for premium wines. Now the impacts are going to be different for different wine-producing regions. Can you comment on the implications of anticipated climate change or perhaps a climate change already being experienced for some specific areas?

Rob Stavins: I mean, Bordeaux in France, Napa Valley in California. I know you've done work with Karl Storchmann along the Rhine in Germany. Any particular findings from all of that work?

Orley Ashenfelter: It's fascinating, and you put it just right. Grapes are very sensitive to growing season weather. And we distinguish climate as the long-term outcome of weather. And the weather itself changes from year to year. We're already seeing some quite remarkable things happening and I'll come back to this, but broadly speaking, grapes are also adaptable.

Orley Ashenfelter: So, people typically plant the grapes that are most suited for their climate in the area that they are. And this, by the way, it covers, goes all the way from Minnesota where grapes like the Marquette and the Frontenac had been hybridized so they can stand the cold winters, just like the people can stand them, all the way to Greece, where the grapes are almost impossible to ripen if you're not in a remarkably hot climate. Right now, we're seeing a few things happen. Some people are very concerned about adaptation.

Orley Ashenfelter: They're already thinking about what grapes they might want to change to, but the first-round effects of climate change, I think, as we've seen it and I noticed it, first of all, Rob, in the data that I collect on Bordeaux. After 1980, there's literally not a year in which temperatures dropped back into the levels they were in the summers of the 1960s and 70s. So the primary effect in Bordeaux has been much warmer summers, and the primary effect of that has been much better wines.

Orley Ashenfelter: So, the Bordeauxes have really become much tougher competitors against the California folks, who-

Rob Stavins: Interesting.

Orley Ashenfelter: ... have the warm weather already going for them. So you can see it in the wealth of the neighborhoods. Germany is the same way. They grow grapes at 50 degree latitude, and very difficult to do. Instead of getting three out of 10 good vintages now, they can get seven or eight good vintages out of 10, and you can see it in the prosperity of the farmers.

Orley Ashenfelter: I mean, they have better equipment. Actually, the other place where I've noticed it is in the northern part of Italy, the Piedmont region, which is also very sensitive to cooler summers. And there again, you can see the prosperity. They're getting more wine at high quality. Now the problem of course is that some places are already too hot, and you can see the adaptation going on say in Greece, where what people are trying to do is to grow grapes at higher elevations. Higher elevations get you a little cooler.

Orley Ashenfelter: In Spain, there's deep concern about it. The Torres family has bought a lot of property in the mountains of Catalonia, preparing for the possibility that they

may have to grow grapes at much higher elevations if they want to keep growing the same grapes they have grown. What you do see is a little incursion of some of these hybridized grapes. So, I just happened to notice Eric Asimov's column, you may have seen it. I think it was last Wednesday. And it was about 12 grapes you ought to know about that you've never heard of, one of which is called Frontenac.

Orley Ashenfelter: And the wine maker, believe it or not, the winery, La Garagista, is in Vermont. So that's a breakthrough for Vermont. Who would ever have thought?

Rob Stavins: Now, I would think that one advantage in the face of climate change for the new world wines including the United States, compared to the old world wines from Europe is that if it gets warmer and you're producing Cabernet in the Napa Valley on the valley floor, you can go up the hillside to the cooler areas, or you can change grapes, as you mentioned.

Rob Stavins: But if you're in Europe and you're producing some of the super-premium wines, I'll take Romanee Conti as the extreme example of that in Burgundy, they can't change grapes because of the AOC system. And for that matter, if they just go across the road, it's no longer Romanee Conti, because it's tied to the property. So what's going to happen to these super premium wines that are produced on one and a half hectares or something in Burgundy or for that matter, in Paulliac?

Orley Ashenfelter: It'll be interesting. There are grapes that were grown in Burgundy that have died out, like Aligote. It used to be so acidic. It was this famous drink, The Cure, where you dumped crème de cassis and you have to have very acidic white wine. Well, Aligote is coming back. It's not as acidic as it used to be.

Rob Stavins: Interesting.

Orley Ashenfelter: And people are drinking it, but I do think you really bring up a good point. The ability to be able to adapt is in some places going to be restricted by government regulations, and it may just be that over time, there'll have to be some relaxation of those regulations as there has been for example, in Italy. It may just be necessary for that. The Americans are much more loose about this. We use place names, but we don't have any requirement that a certain grape be grown in a certain place, or it may be customary.

Rob Stavins: Right. Now climate change is actually good news for wine production, from some areas. I think of Methode Champenoise is now being produced I think very successfully in the United Kingdom, no?

Orley Ashenfelter: It is. Yes, and in fact, they'll be able to grow Chardonnay grapes. The nice thing about champagne, it's so interesting. It's really a way, it's a method, a technology for dealing with unripe Chardonnay. If you get the Chardonnay too ripe, you don't get good champagne. So yes, the Brits have I think managed... I've tasted some of their wines and they can be very, very good. There are a lot

of bad things about climate change. Don't want to leave it. I'll give you an example. One of the things that happens in California occasionally are these heat spikes.

Orley Ashenfelter: Grapes do not do well above 95 degrees, and they don't do well below 55 degrees. These 105-degree heat spikes, unless you just throw water at the plant, the plant will actually suck the juice right out of the grapes and leave you with nothing.

Rob Stavins: I see.

Orley Ashenfelter: So the heat spikes, I think what the danger of climate change for many locations is going to be these highly unpredictable, specialized situations. We had one last year in the Pacific Northwest, which is now famous, at least in Oregon, in the Western side of the state for growing Pinot Noir. But they had this huge heat wave in Pacific Northwest.

Orley Ashenfelter: I don't know what it did to the grapes, but I'm guessing they had to pick early, and they may have grapes and wines that are not typical. Now, why that happened…it didn't happen in Southern California. Normally, a heat spike on the coast in the Pacific will go up, travel up and down the entire coast, but it didn't happen in Southern California. It really just happened in the Pacific Northwest.

Orley Ashenfelter: So, there are these highly unpredictable I would say outbreaks of situations, where you end up with problems not of your own making. The other thing that can happen is we see this, I have a small vineyard in New Jersey. There what we worry about, what farmers worry about all of... You have to worry about everything. Nothing is simple. Everything is complicated. Mother Nature, you never know what she's going to do. But one of my greatest fears is when the Canadians get angry and they send the polar vortex down to us, the polar vortex will just kill the vines if it really gets really... You go down to minus five Fahrenheit for a length of time, and you'll just kill off the whole thing.

Orley Ashenfelter: A vine takes five years to mature. So it's extremely costly when you get these giant, super cold spells. And we've seen them happen in places where no one really would've expected them in the past. I don't know how much that is climate change or how much it is something else.

Rob Stavins: Now I've often heard it said that grapes for wine production are now produced in all 50 states. Does that include Alaska?

Orley Ashenfelter: North Dakota's my favorite. They don't actually necessarily grow grapes, although they may grow these hybridized, these Frontenac and Marquette. They can survive a winter in Minnesota, so they can probably survive a winter in North Dakota. I think there'll be places in Alaska too, but a lot of times... There's a little winery in North Dakota. They have a website, look it up sometime. It's

very funny. It basically promises that any farmer who grows fruit in North Dakota and brings it to the winery, they'll make it into wine.

Rob Stavins: I see.

Orley Ashenfelter: So, it isn't always grapes.

Rob Stavins: Oh, so it's not always grapes, right.

Orley Ashenfelter: Yes.

Orley Ashenfelter: They're famous for their dandelion wine.

Rob Stavins: Dandelion wine?

Orley Ashenfelter: Yeah.

Rob Stavins: Yes. Sounds good. I'll try it sometime. Now, so you've been observing the wine industry and enjoying fine wines for decades. You've seen some significant changes. What are the one or two changes that stand out in your mind over the long haul from when you first got really seriously interested in wine until today?

Orley Ashenfelter: I think the biggest single change is the minimum standard for wine making. A wine maker is like a chef. Basically wine is you take raw materials, you have a recipe and you make a product. If you get the recipe right, and you have a competent winemaker, the grapes really put the limit on what you can produce. What I've noticed is it used to be that this is a very important thing for people to understand.

Orley Ashenfelter: When you go to North Carolina…I just learned today about a guy who's using this system where you dry out grapes that they do in the Verona region that's done for Amarone, that guy is doing that in North Carolina. I've tasted good hybridized wines from Florida. Something called the Stover Reserve. What has surprised me is that the minimum standard for wine making has really become much higher than it was in the past.

Orley Ashenfelter: I think this can be credited to not just UC Davis, which is often credited as the great winemaker place. But a lot of these winemakers come from Australia. There's a very famous wine making school in Australia, but even a place like Penn State has a very high quality... or Virginia Tech. They have high quality facilities where people can learn how to actually produce these grapes. So in a way, it's a little bit like cooking. The minimum standard for wine making I think has broadened.

Orley Ashenfelter: And you can see it in places that you would never have seen it in the past. So I like to think we'll get the locavore program can become more much broader. So that goes together. The minimum standard for being able to produce these

wines goes with the locavore. I grow these grapes in New Jersey, well, I'm not having any trouble selling them this year, there's clearly deep interest in it.

Orley Ashenfelter: You see a lot of breweries that have now been established. Hammonton, New Jersey, near my vineyard, also has a distillery. They're all interested in local things. And I think that's partly because people know how to do it, and at one time, it would've been... Uncle Jack's rotgut would not have been satisfactory.

Rob Stavins: That's a perfect place on which to end our conversation. I want to urge listeners that if you're interested in economics, and I think virtually everyone who follows this blog is, and you're interested or have become interested from listening to the dean of wine economists, Orley Ashenfelter, in wine and economics, then check out the website of the Journal of Wine Economics, or become a member of the American Association of Wine Economists. There is a whole world.

Rob Stavins: I'm astounded sometimes by the breadth of the articles that appear in the journal. There is just so much to look at from an economic perspective on wine production and wine consumption. It's marvelous. So Orley, thank you very much for having taken time to join us today.

Orley Ashenfelter: My pleasure, and don't forget the book reviews, which Rob edits in the Journal of Wine Economics

Rob Stavins: Oh, thank you, Orley. So, our guest today has been Orley Ashenfelter, the Joseph Douglas Green 1895 Professor of Economics at Princeton University. And as I said, the absolute dean of wine economics in the world. Please 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.

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