

## I am an environmental economist – but what does that mean?

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When people ask me what I do for a living, I tell them I am an environmental economist with Ohio State University Extension. I get a lot of intense reactions to that, and they generally involve a combination of: (a) that sounds impressive and (b) what does an environmental economist do? So let's go over what environmental economics is all about.

Name any environmental topic you have ever thought of or read about. There's recycling, global climate change, pollution, preservation of sensitive lands, fracking, water quality, endangered species; the list goes on and on. Now consider that any time you discuss one of these topics or read about any of them, you might initially focus on some of the technical, physical or biological issues at the center, but it will not take very long before you begin to address the economic dimension. It is simply unavoidable. Try it and see.

Take the issue of climate change. You may read about carbon dioxide and how concentrations in the atmosphere have increased since the time of the industrial revolution. You may get into climate models that simulate how increasing greenhouse gases will change precipitation, temperature, winds, etc. But eventually the arguments on both sides of this divisive topic come down to economics. Those who oppose taking action to combat climate change argue that the policies proposed to reduce carbon dioxide emissions would cost too much money and would stifle economic growth, and for the most part they have had the upper hand in the debate, which is why emissions and concentrations of CO<sub>2</sub> keep rising and will continue to rise indefinitely. It all comes down to economics. That doesn't mean that that side is correct, it just means that they have been

more effective than their opponents in using economic arguments to get their way.

Okay, so there are economic dimensions to every environmental topic. But what is so special about that? There are all kinds of dimensions to all kinds of topics. Why make a special field out of it? The answer to that question has to do with the most misunderstood area of study in our time: the field of economics itself. Since we asked about environmental economics and we got an answer that implies that the environmental portion, although potentially technically complicated, is still somewhat obvious, let's shift the focus and address the question: what is economics?

### What is Economics?

Money, finance, business. These are topics that come to mind when many of us think about economics. But those do not describe what economics is or what it is about as much as they just begin to form a list about items economists study. And now we already know that the environment is an item in that long list as well, even though it is not one that traditionally comes to mind as fast as the others when the term economics is bandished about. *Economics is really the organized study or analysis of how choices get made among alternative or competing ends in a world in which resources are limited.* So you could go to a concert one evening or stay at home and hang out with the family. Once the evening is gone, it isn't coming back. You have to choose. An analysis of how you go about that choice may involve other areas like psychology or music, but the organizing framework for the analysis is what economics is all about.



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Many of the questions economists ask involve the analysis or study of markets. So in the case of whether to go to the concert or stay at home, economists would probably study that in the context of the market for concert tickets, which is a flourishing market - as a glance at TicketsNow or StubHub will quickly show. Similarly, economists spend a lot of time studying other markets including real estate markets, energy markets and of course money markets. But they only do this because we as a society have determined that we are going to allow a lot of the choices we collectively make be determined by way of markets as opposed to other mechanisms. There is nothing sacred about markets though. In fact there are many instances in which things we all value cannot be bought or sold directly in any kind of market at all.

Think of a beautiful view. Maybe it is a view of a mountain or the sea. Maybe it is a view of something man-made, like a city. The view may mean a lot to you, me or someone else. But one thing is for sure: That view, no matter how much it means to any of us, is not traded in a market. It is not like a hamburger, a car or a piece of property. Those things you can buy in a market. They have a price that is easily determined and ownership is well specified, defined and easy to enforce. Not so with the view. You cannot directly buy it, sell it or own it. But again it has value to many. How can we measure that value if there is no market?

I know what you're thinking. You can purchase the view by purchasing the land parcel that provides it. But that is only partly true. You may think you have the view by purchasing a parcel, but someone could potentially place an obstruction between your parcel and the item you are viewing. Someone could even change the item you are viewing. Imagine buying a parcel that affords a great view of a green hillside only to learn that someone is placing something on the hillside that you do not want to see – or smog becomes so bad in the area that visibility is restricted to the point you can no longer have the view at all. Even though you attempted to gain the view by participating in a market for a parcel of land, the market has failed because you did not wind up getting what it was that motivated you to buy the parcel in the first place: the view. This problem – market failure – lies at the core of environmental

economics, and it separates the field from the rest of economic studies that center around the analysis of how markets work. It turns out that market failure is ubiquitous. *Environmental economists study situations that involve market failure and attempt to identify strategies to provide people with what they want when the market otherwise would not tend to do so.*

## **Environmental Economics Research & Resulting Studies**

Take the case of recycling. It often costs more money to recycle plastic or glass than to discard those items and make new ones. So why not just let the market determine that we should follow that path? Well, it turns out that the market fails in this respect because it does not take into account the “external” costs of disposing of used plastic and glass. Nobody wants to live near a landfill, but the more items we discard, the more landfills we have to build. The extra cost of recycling the materials may be worth it to members of the community who do not want to see landfill expansion. But how do we know if it is or not? That’s where research comes in.

Two primary methods exist for measuring the values of items when the market has failed. One involves just asking members of the community (the stated preference approach) and the other involves observing how people actually behave in markets that are partially related to the item we are trying to value (the implicit market approach).

In the stated preference approach, we conduct surveys and ask people questions like, “How much is it worth to you to maintain the recycling program in your community?” We actually did a study on this topic back in the early 2000s in Lake County after the funding for the recycling program they had in place faced the possibility of not being renewed. (View [study](#).) We also used stated preference in a study on willingness to pay to have contaminated sediments dredged from the Ashtabula River. It turns out there was a lot of concern that the sediments could have been forced out into Lake Erie where they could contaminate fish, making them unsafe to eat. (View [study](#).)

Additional stated preference studies available to view include:

- [Cuyahoga County Green Space Preservation Study](#)
- [Grand River Study](#)
- [Lake County Conservation Easements Study](#)

For an example of the implicit market approach, think back to the purchase of the parcel that afforded the view of the hillside. We might expect that parcels that have a great view like that would sell for a premium over parcels that do not have that kind of view. Attributing the value of the view to the premium gives us an implicit market for the view, and therefore allows us to measure it. We can also use an implicit market approach to obtain a value for a travel destination like a beach or a park. You may

not have to pay an entry fee, but by spending money and time to get there and engage in an activity, you are participating in an implicit market for the destination. Measuring the costs you incurred to do that allows us to estimate the value of the destination. We recently conducted a study like this to estimate the value of shoreline angling (fishing) on Ohio's Lake Erie shore. (View [study](#). View [news article](#).)

The results of studies conducted by environmental economists have important real world implications. Our studies convinced officials in Lake County to keep the recycling program. The US Army Corps of Engineers completed the dredging of the Ashtabula River a few years ago. And we believe that the results of our study on shoreline angling will convince officials to maintain and even enhance public access to Ohio's Lake Erie shoreline.