I participated in a NPR interview on Marketplace on the topic of the "Social Cost of Carbon". A different way to say the same thing is; "What is the benefit of not producing another ton of carbon?" While President Obama will ask a "Dream Team" of economists and climate scientists to answer this question (and I hope their answer is somewhere in the range of $20 < X < $55), I have no idea how they will write down a credible methodology for justifying their favorite number. But, let me sketch the challenge through an algebra example.

To simplify this very hard problem, suppose that the only consequence of climate change is to raise average temperature levels. Let's simplify further and assume a linear relationship so that every ton of carbon released always increases atmospheric CO2 concentrations by d units. Let's make another linearity assumption and assume that a one unit increase in CO2 concentrations increases average average temperature by m degrees. Let's make another linearity assumption and assume that world GDP declines by $f for every increase of 1 degree in average temperature. Now that we have made all of these crazy assumptions, the world GDP cost (measured in dollars) of an extra ton of CO2 always equals = d*m*f. You wanted an equation and I have supplied one. But, isn't it silly? As an economist, I propose that we focus on the "f".

Our economy is not physics. There are no universal constants for how environmental conditions impact us! That's the whole point of why I wrote Climatopolis. As we grow richer and smarter and as we experiment, we become more resilient in figuring out new strategies so that we suffer less from events such as temperature change. We are urbanizing and fewer of us work in agriculture. Now, I agree that the impact of CO2 concentrations on average temperature is also likely to be a convex rather than a linear equation. In this case, as China and India continue to consume fossil fuels, the social cost of carbon could rise over time even as we get better at adapting.

My point is that a number is needed as the "Social Cost of Carbon" in order to help justify activist carbon policy but the intellectual justification for the number that is picked is going to being almost funny. Perhaps it is important for economists to be more honest about the assumptions we do make when creating an economic model that generates a single "answer" to a very hard question.