

## 3Qs: Game theory and global climate talks

November 21 2014, by John O'Neill

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Last week, China and the United States announced an ambitious climate agreement aimed at reducing carbon emissions in both countries, a pledge that marks the first time that China has agreed to stop its growing emissions. Leaders of both nations hope the agreement will lead to a global consensus on emissions reduction, with one senior official in the Obama administration saying that the deal "will signal to countries around the world that this negotiation has serious legs and there is a real chance of this coming together."

We asked Rory Smead, a game theory expert and an assistant professor of philosophy and religion at Northeastern, to examine the agreement's potential effect on the prospect of a global [climate agreement](#) as well as what his research suggests about the possibility of successful negotiations. Two of Smead's colleagues—John Basl, an assistant professor of philosophy, and Ronald Sandler, an associate professor of philosophy—contributed to the following responses.

### **Is this agreement a cause for optimism regarding worldwide climate policy? What else can be done to progress toward a global deal?**

The agreement is cause for some optimism. The U.S. and China are such enormous emitters that a successful global climate agreement could not be accomplished without significant reduction commitments from them, and other countries have been frustrated by the lack of such commitments. Moreover, the U.S. government had been reluctant to

make any commitments without China also agreeing to some reduction. So, this is definitely a step in the right direction, but there is a long way to go yet.

Emissions from the rest of the world, including projected future emissions from [developing nations](#), will also need to be reduced dramatically. Such reduction may, for many nations, be more difficult than for the U.S. and China, given economic, technological, and political circumstances. The U.S. and China may also need to make even greater reductions in emissions, and further cuts may be harder or more costly than the initial cuts. If, in light of the current agreement, we are unwilling to openly consider further cuts, this could hinder future negotiations over global climate policy.

**You and your Northeastern colleagues have studied how game theory can be used in international climate negotiations. How does this research apply to this new agreement?**

Our research has suggested that side-agreements between nations can have a positive impact on global negotiations. The fact that the U.S. and China are now committed to reduce emissions means that the global problem is a little easier to solve and could make other negotiations more likely to succeed. However, the reaction from other nations will be crucial. One of the points we have emphasized in our research is the importance of the many smaller parties, particularly still developing nations, in the climate negotiation process. We've argued that agreements between many smaller emitters may be more important for reaching global agreements than agreements between a few large emitters. An agreement between the U.S. and China will not solve [global climate](#) problems unless we get broad cooperation across the globe.

## **In your view, what are the most significant challenges to global climate negotiations with regard to justice and fairness, and does this agreement ease those concerns?**

Up to this point, considerations of justice and fairness have been a barrier in [climate negotiations](#). India and China, for example, had argued that the U.S. and other affluent nations had a responsibility to make larger proportional emissions reductions, since we are responsible for more past emissions and have a greater capacity for reducing emissions. However, the U.S. has argued that dramatic reductions on our part without concomitant reductions from other large economies, including developing nations like China, would be unfair with respect to economic competitiveness. This [agreement](#) demonstrates that it is possible to find common ground on [emissions](#) reductions, without having to settle all of the disagreements about justice and fairness. Moreover, from a global justice perspective, it is important to mitigate [climate change](#) as much as possible. The reason is that the poorest populations are also the most exposed to the hazards associated with climate change—e.g. extreme weather events, displacement, and food insecurity—and have the fewest resources to cope with them. This is why addressing climate change is such an important moral issue, and not just an economic and political issue.

Provided by Northeastern University

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