

Climate and the Commons—a reappraisal

An editorial essay

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The challenge of climate change is widely held to be an instance of the Tragedy of the Commons par excellence. But when it comes to the Commons, it is “the inherent logic” of it that “remorselessly generates tragedy” in Garrett Hardin’s words. Hence the basis for widespread pessimism about our current circumstances. There are certainly many reasons to be pessimistic about our circumstances, but I want to examine whether or not the Tragedy of the Commons is really one of them. It is not the logic that I think deserves re-examination, but the rather its application to the case of climate change. At first blush this may seem quite ludicrous—if that logic does not apply to climate change, then what does it apply to? But in what follows I want to show how parties can step outside that logic by drawing on interests that it ignores. I do so by looking first at the application of Hardin’s argument to groups of individuals and then to state actors. I argue that there is a general lesson to learn from these considerations about the use and misuse of social choice theory in understanding the constraints on cooperation. The widespread belief that climate change is an instance of the Tragedy of the Commons limits our horizon of possibility.

1 Hardin’s argument

Garrett Hardin’s famous essay (Hardin 1968) is now so closely associated with the problem of regulating greenhouse gasses that it is easy to forget that the essay itself hardly touches on the subject despite his iconic invocation of the pasture:

Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching,

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and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is, the day when the long-desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorselessly generates tragedy.

The Tragedy of the Commons is primarily an essay about population growth and its discontents. It is a general meditation on the destructive consequences of increased population size and the challenge of regulating those consequences. The intended contrast is to Adam Smith's "Invisible Hand"—Hardin's thesis is that individuals pursuing their self-interest, far from promoting the public interest, will in fact produce an outcome that is sub-optimal for everyone, including them, absent unlimited resources. But such limits are relative to the demand for such resources. At the time the essay was written (in 1968), it was population growth that seemed to represent the most likely basis for such increasing demand. Today, we see it as as much a product of per capita economic growth as population growth per se. Indeed, as Gardiner points out (2002), it is wrong to think that more is necessarily better than less when it comes to the number of one's offspring. Be that as it may, the model is the same. Absent barriers to entry, public goods will be overused by individuals acting out of their self-interest, even as the (total) cost of doing so outweighs the (total) benefit. Short of reducing the population, Hardin canvasses the alternative of privatizing these resources to the extent that is possible. Where it is not, he is unimpressed by the power of conscience, and instead embraces the idea of mutual coercion as a means of regulating our behavior—including limiting the choice to procreate without restriction. In this sense, Hardin's article is much less pessimistic than the uses to which it has been put. The Tragedy of the Commons does not drive to the conclusion that we are doomed, but rather that, *absent coercion*, we are doomed. But in its own way, Hardin's essay is also perhaps too optimistic. For what it does not address is how, and why, we should choose to subject ourselves to such coercion in the first place.

Any formalism maybe correct but nonetheless not be instanced. So you can agree with the logic of the Tragedy of the Commons without thinking there are any real world cases of it. But that is too quick. All formalism involves a compromise between realism and mathematical tractability. Here the issue is whether the price we pay for getting the second over the first leaves us with enlightening results. Does the formalism help or hurt? It depends on what you are seeking enlightenment about. Here the enlightenment I seek is how pessimistic we should be about the prospects for agreements to limit green house gasses.

2 Groups

How much should we heed the pessimism that the logic of the Commons prompts? One reason not to embrace its pessimism is that in fact in some cases groups do overcome its "logic", as Elinor Ostrom shows in *Governing the Commons* (1990). Such cases are sometimes of extraordinary long-standing. Communal tenure Toerbel Switzerland dates back as far as 1224 (p.62), while common lands in Japan date back to the Tokugawa period (1600–1867; p.65). Moreover, as my colleague Bonnie McCay has shown (1987), fishermen can collectively regulate the commons under the right circumstances. But the rub is that what makes for the right circumstances

is quite limited—too limited, one might think, to apply to the forces in play in climate change negotiations. As Ostrom argues the case, among other factors, what differentiates the cases that work from those that don't is that (graduated) sanctions are enforceable (which thereby create barriers to reentry). That is just what someone like Scott Barrett (2003) argues greenhouse gas reduction arrangements (like Kyoto) between nation states have lacked. At the most vulgar level, absent World Government, why would nation states *not* respect the logic of the Commons? For they lack just what communities that have struggled to self regulation have—enforceable sanctions. And yet this is not the end of the story. For we have today some examples of sub-national entities that *have* acted on their own to restrict their access to the Commons in a way that seems to go against their own self-interest. That is surely inconsistent with what the logic of the Commons says they should do if they are rational agents. What can we learn from these cases?

3 State actors

Consider the case of New Jersey. When Governor Jon Corzine signed Global Warming Response Act on July 6th 2007 (<http://www.state.nj.us/governor/news/news/approved/20070706.html>), New Jersey had in place the most far reaching green house gas legislation in the World. For the state with the highest number of Superfund sites in the country (<http://www.njpirg.org/action/toxics/superfund>) it was a pleasantly surprising position to be in. Corzine's staff was proud of the fact that New Jersey was not following California but ahead of it with a legally mandated goal of an 80% reduction of green house gasses by 2050. The fact that no nearby state had such legislation in place seems not to have deterred the Governor or the Legislature. Did pride simply overwhelm logic? For the logic of the Commons would seem to dictate that this legislation should not have been enacted. Or were other considerations in play? But if so, do those considerations render New Jersey's actions consistent with the logic of the Commons first appearances notwithstanding? *Or do they undermine the logic of the Commons?*

Each fisherman wants to catch as many fish as his boat will carry. Absent some binding collective enforcement mechanism, one fisherman limiting his catch does nothing to prevent overfishing; it just leaves more fish for the others. Why doesn't this reasoning apply just as well by extension to New Jersey relative to other states? Corzine was inaugurated as governor of New Jersey in January of 2006, climate change legislation had played a relatively small role in his campaign as did his environmental campaign commitments. In a speech on the environment in the campaign (10/7/05), Corzine's pledged to reduce energy consumption by 20% and grow renewable energy resources by the same amount. The first part of this commitment did not specify from what base line the reduction would be measured. The second was ambiguous about whether the growth would be a 20% addition to the existing renewable resources or to 20% of all energy production. Less than a year after his inauguration though, Corzine signed an executive order with much more unambiguous and ambitious goals for the State. Executive Order #54 called emissions targets for greenhouse gasses at 1990 levels by 2020 and 80% below 2006 levels by 2050. Less than 6 months later the same targets were signed into law giving them standing beyond the term of the governor (in contrast to the executive order).

More important, the “targets” of the executive order became more prescriptive in the language of the bill—“No later than January 1, 2020, the level of Statewide greenhouse gas emission *shall* be reduced to, or below the 2020 limit.” (SB2114, p.3 (my emphasis)) and so too for the 2050 provision. With that, New Jersey ended up with stronger legislation than California, which only enacted the 2020 goal but remained silent on the more challenging 80% by 2050 target.

All of which brings us back to the problem of the Commons. Just how are these actions to be reconciled with its logic which would seem to indicate they should not have occurred in the first place? The most obvious way to achieve such a reconciliation would be to argue that such legislation would yield an economic *advantage* to New Jersey over its neighbors. Such an argument would not need to be about the facts of the matter as far as economics but rather about the beliefs of the actors. Nor would those beliefs need to be well founded—they would just need to be genuinely held. This is much is certainly true: *after the fact* both the Governor and the prime mover (Assemblywoman Linda Stender) argued that the bill would promote economic growth that would counter balance any “costs” to the economy that it might create. But the transcripts of the hearings and other supporting materials reinforce the perception that it was economic cost, not benefit, that was the issue to the extent that economics was talked about at all before the legislation passed.

Another way the legislation might have been motivated was as a response to voter interest. Here the economic costs would be outweighed by the political benefits to the actors involved. But the record from the hearings and supporting material give scant support to the idea that there was any sort of groundswell of voter interest in the bill, let alone, prior support for the issue. Instead, all of the critical players involved readily suggested that they thought *passing the bill was the right thing to do and something that needed to be done, even if it only set and example and precedent for other states and the Nation*. At the same time, these high minded interests were consonant with a concern not to alienate the environmental groups in the State which were seen as an important constituency for the Democratic Party organizationally, if not in terms of numbers of votes, and had “driven” the issue forward from its inception onward.

Let us assume this analysis is correct as a motivational and causal history. Then how does it fit with the logic of the Commons? Did the actors violate the logic of the Commons? Such a judgment (of irrationality) is surely one of last resort. The burden of proof is to demonstrate that all the alternatives can’t be defended.

4 Sidestepping the logic

Consider a farmer who declines to put his cows to pasture on the Commons. He knows his restraint will simply leave more for others. But still he acts. In once instance, imagine he is driven by a doctrinal commitment that demands “respect for Nature” irrespective of the material consequences that follow from obedience. Perhaps we will say, albeit reductively, that, in the terms of his preferences, obedience yields him “benefits” that outweigh the “costs”. But whether we render such interests internal to the economic calculus or not does not really matter. All that matters is that, with such interests in hand, the clash of interests that drives the logic of the Commons is broken. The step from “if I show restraint, others will simply benefit

and so there is no point in doing so” is replaced by the “if I show restraint, others will simply benefit and so be it.” If legislators acted because it was the “right thing to do”, notwithstanding knowledge that others might benefit, then they acted like this farmer. But neither they nor he acted irrationally. They simply stepped outside the logic of the Commons by embracing interests that it assumes are not in play. Perhaps the farmer was not high minded after all. Instead, he had his eye on a rich landowner whom he thought might hire him because he showed the appearance of good stewardship—even if the thought to himself that this was a mere gesture, doomed to failure by the actions of others. Here too we need not treat these interests as externalities. We can put numbers on the farmer’s calculus. His actions can come out as rational based on those numbers. And so too for the legislators, with their eyes on their environmental constituency. Here too, they simply stepped outside the logic of the Commons by embracing interests that it assumes are not in play. But wait. Is the logic of the Commons undermined by any of this? Surely it does not demand that *everyone* march to its rhythms. As long as some people do, and their needs outstrip available resources, the problem will arise. One farmer or one state does not change this. Nor do many. Two farmers with enough resources to buy more and more cows are enough to create the problem irrespective of the actions of others. In doing so, they undermine the chances for what is called a partial compliance solution to the problem. (That is, a solution in which it is in the interests of some parties to limit their action, notwithstanding the actions of others. For more, see Gardiner 2002.)

So unless (nearly) all the farmers (and states) have these interests, the logic of the Commons still marches on. If we were lucky and all high minded, things might turn out well. When it comes to farmers, we are dealing with many many players. When it comes to states we have just a handful. Suppose the farmers are few in number and perhaps isolated so others cannot join them. One farmer is high minded. And through sheer force of personality, convinces others to be so as well. This community side steps the logic of the Commons. In another community, others see the high minded farmer seems at peace. Desiring this too, they imitate his behavior, perhaps mindlessly. They too dodge the bullet. Can this be the way it is with states?

If the dominant view is that where communities with a small number of players sidestep the logic of the Commons, it is because they are able to establish both barriers to entry and some sanctions applicable to those who break any agreements (or refuse to enter them in the first place), that is not what is happening here. New Jersey acted for its own reasons—be they high minded or low and be they well founded or not. Still, is there any reason to think that the considerations of the last paragraph are powerful enough to undermine the need for barriers to entry and sanctions as the only way to move from one state to a community of states? How much do we need to assume for this to take place?

Many years ago, Schelling (1971) gave a beautiful model about how stable all white neighborhood can turn all non-white but not because nobody wants to live in an unmixed neighborhood. All you have to you assume a reasonably even distribution of preferences that the residents have for how white a neighborhood they want to live in. A few want to be in an all white neighborhood. Some will tolerate a few non-whites but not many and so on. Why would such a neighborhood be either all white or all non-white? Given the distribution of preferences, you would think it would settle somewhere in between. But consider this: as the first non-whites move in, the whites that don’t want to live in anything but an all white neighborhood move out.

The rest stay in place. But for some of them, if any more non-whites move in, then they become uncomfortable and will move. But now assume the first to leave get replaced by non-whites. So now the next group of non-whites will go. And so on. Of course, in reality, distributions are not that smooth. And sometimes the discontinuity can be sharp enough to break the slide. But the point is that each change begets more change, creating a cascade from one stable equilibrium to another *that does not require everyone to be a party to the equilibrium positions ahead of time.*

In like fashion, suppose each country has its own interests in limiting climate change. They have two reasons for inaction. Limiting their own output may not make enough of a difference for it to be worthwhile for them to do. And limiting their output absent restraint by others will leave them vulnerable to exploitation by others (à la Tragedy of the Commons). *But suppose their own output is large enough to make a difference*, as it is for the United States, Europe and China. Or, perhaps, even if their output is not large enough to make a difference, suppose other considerations play a motivating role, like the political payoffs of leadership. Then their fear is only the second reason – that they will be taken advantage of. And so too for each party. Suppose one acts. Then that state not only reduces output but takes itself of the table as a potential exploiter for others who show restraint. So there is a bootstrapping effect if one can get the ball rolling whatever the reasons it starts rolling. As each successive country joins in, the potential for exploitation by the rest goes down simply because their number goes down.

Suppose there are a few hold outs, ready to exploit the restraint of others. That *may* not matter depending on the numbers. If cooperation involves most and the hold outs are few, the benefits of compliance may hold sway and produce a stable regime of partial compliance. But we may hope for more. Grotius (1583–1645) writes that “[w]hat cannot be seized or enclosed—such as the open sea—cannot be reduced to the property of individual States. Thus, these zones remain ‘common to all mankind’ ...”. However weak international law and world governance may be, such a principle of the Common Heritage of Mankind operates as a natural law that restricts the freedom of actions by a people based on the interest of other peoples. Of course, this is no law. But what it is, instead, is a principle that expresses the idea that wherever an international consensus exists, it makes it hard for those outside the consensus to act.

5 Conclusion

On March 13th 2001 President Bush declared that he “oppose[d] the Kyoto Protocol because it exempts 80% of the world, including major population centers such as China and India”. The Tragedy of the Commons invites the idea that unilateral action is an act of folly. But if the considerations raised here have merit we should be wary not to be seduced by its logic. For to do so may hobble our idea of what is possible and thereby end up creating a self-fulfilling prophesy.

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