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Tempering the Over-Use and Abuse of Common-Pool Resources

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CORNHUSKER ECONOMICS

Tempering the Over-Use and Abuse of Common-Pool Resources

Elinor Ostrom, a professor at Indiana University, was awarded the Nobel Prize in Economic Sciences (first woman to ever receive it) in 2009, sharing it with Professor Oliver Williamson. The prize was awarded “for her analysis of economic governance, especially the commons.” She “challenged the conventional wisdom by demonstrating how local property can be successfully managed by local commons without any regulation by central authorities or privatization” (<http://www.nobelprize.org/>). Also, full privatization, i.e., assigning individual property rights rather than shared, common property rights, is also not essential. She summarizes her contribution in the finding “that humans have a more complex motivational structure and more capability to solve social dilemmas than posited in rational-choice theory,” thus going beyond both traditional economic and government oriented frameworks for analyzing the common pool resource problem.

So what is the social dilemma? Over-use and the general abuse of common-pool resources (such as forests, water systems, fisheries, global atmospheres) are examples of social dilemmas. That is, when driven by self-interest only, with little to no consideration given to the shared interests with other participants or the environment, there is a tendency to over-use common pool resources. As a result, according to this model of self-interest only behavior, it is not possible to sustain long-term use of such resources. In other words, there is a conflict between personal interest (i.e., self-interest) and shared interests (other-interest). However, as Ostrom showed, there are many cases where resource users actually had overcome social dilemmas (they managed to solve their own problems of resource overuse, together) to sustain long-term use of common pool resources. Her results thus challenge the presumption that individuals could not overcome social dilemmas, and thus the presumption that strong government involvement, or complete individual privatization of the resource, was essential. Rather, her findings point to the

Market Report	Yr Ago	4 Wks Ago	1/6/12
<u>Livestock and Products,</u>			
<u>Weekly Average</u>			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight.	\$105.29	\$120.46	\$121.23
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb.	147.34	169.51	180.07
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb.	126.83	148.50	151.11
Choice Boxed Beef, 600-750 lb. Carcass.	165.81	188.57	192.34
Western Corn Belt Base Hog Price Carcass, Negotiated.	70.45	82.68	82.29
Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean.	78.35	89.48	84.77
Slaughter Lambs, Ch. & Pr., Heavy, Wooled, South Dakota, Direct.	161.00	158.00	152.50
National Carcass Lamb Cutout, FOB.	352.13	403.36	396.54
<u>Crops,</u>			
<u>Daily Spot Prices</u>			
Wheat, No. 1, H.W. Imperial, bu.	6.87	5.93	6.07
Corn, No. 2, Yellow Omaha, bu.	5.68	5.99	*
Soybeans, No. 1, Yellow Omaha, bu.	13.21	11.00	*
Grain Sorghum, No. 2, Yellow Dorchester, cwt.	9.46	10.04	10.88
Oats, No. 2, Heavy Minneapolis, MN, bu.	3.89	3.24	3.10
<u>Feed</u>			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton.	140.00	155.00	155.00
Alfalfa, Large Rounds, Good Platte Valley, ton.	72.50	132.50	140.00
Grass Hay, Large Rounds, Good Nebraska, ton.	*	95.00	97.50
Dried Distillers Grains, 10% Moisture, Nebraska Average.	186.00	216.00	214.50
Wet Distillers Grains, 65-70% Moisture, Nebraska Average.	65.00	70.00	73.50
*No Market			

jointness and nonseparability of individual and combined efforts with others, the latter perhaps arising through government, but not necessarily so.

After developing theoretical models of common-pool resource situations, Ostrom and her colleagues decided to examine the effect of combinations of different variables on human behavior, in both laboratory and field settings. Both lab and field experiments suggest that many predictions of the conventional theory of collective action do not hold, i.e., more cooperation takes place than predicted and subjects invest in sanctioning free-riders, and there is motivational heterogeneity in harvesting, contribution and sanctioning decisions. Specifically, when subjects do not know the reputation of others and cannot communicate, then individuals over-harvest. On the other hand, when subjects communicate and otherwise interact, they often agree on joint strategies, are able to create effective governance of the resource, as well as increase their earnings and reduce the level of over-harvesting. In effect, they learn to temper their self-interest only tendencies. From field work, involving a large number of studies of irrigation systems in Nepal as well as of forests all over the world, she also challenges the presumption that governments always do better in organizing and protecting important resources than users themselves. Others, using her research methods, have also reported effective, individually designed systems in Japan, India and Sri Lanka as well.

So given all of her work, what we know now is that “earlier theories of rational individuals who are trapped in social dilemmas are not supported by a large number of studies using diverse methods” (Ostrom, 2009, p. 429). However, this does not mean that dilemmas will always be solved by those involved; as suggested by Ostrom:

- We need to recognize that not only individual differences affect individual behavior but also the context in which interactions take place strongly affects individual choices.
- In some contexts, one can move beyond the presumption that rational individuals are not able to overcome social dilemma situations.
- When individuals face a social dilemma in a microsetting, “they are more likely to cooperate when situational variables increase the likelihood of gaining trust that others will reciprocate,” i.e., recognizing the important role of trust in overcoming social dilemmas.
- It is essential to understand both social and ecological factors that affect human behavior.

Ostrom concludes her Nobel Prize lecture with:

“The most important lesson for public policy analysis derived from the intellectual journey I

have outlined here is that humans have a more complex motivational structure and more capability to solve social dilemmas than posited in earlier rational-choice theory. Designing institutions to force (or nudge) entirely self-interested individuals to achieve better outcomes has been the major goal posited by policy analysts for governments to accomplish for much of the past half century. Extensive empirical research leads me to argue that instead, a core goal of public policy should be to facilitate the development of institutions that bring out the best in humans. We need to ask how diverse polycentric institutions help or hinder the innovativeness, learning, adapting, trustworthiness, levels of cooperation of participants, and the achievement of more effective, equitable, and sustainable outcomes at multiple scales (p. 435).”

As Thaler and Sustein (2008) show (see <http://ageconpanel.unl.edu/lynne/metaeconomics/>), individuals not only respond to incentives, but also often need to be nudged toward better, shared decisions. This is in the same line of reasoning, both based in solid empirical science, with what Ostrom proposes. We need to temper our tendencies to self-interest only. This is done through internalizing the interests we share with others in sustaining the common pool resources like aquifers, and the very atmosphere of this spaceship Earth on which we travel, together.

References:

Ostrom, E. “Beyond Markets and States: Polycentric Governance of Complex Economic Systems.” Prize Lecture, 2009. <http://www.nobelprize.org/index.html>

Thaler, R.H, and C.R. Sunstein. *Nudge: Improving Decisions about Health, Wealth and Happiness*. New Haven, CN: Yale University Press, 2008.

Nobel Prize website at <http://www.nobelprize.org>

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