

How Communities Beat the Tragedy of the Commons

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Empirical Evidence of Successes *and* Failures

- **No single variable accounts for differences**
- **Growing empirical consensus re variables associated with success**
- **Theory of collective action applied to commons is also evolving**

Attributes of a Resource

- **Feasible improvement**
- **Reliable indicators**
- **Predictability**
- **Spatial extent**

Attributes of the Users

- **Salience**
- **Common understanding**
- **Low discount rate**
- **Trust - Reciprocity**
- **Autonomy**
- **Prior organizational experience**
- **Local leadership**

Large Regimes are Important

- **Attributes are affected by large regimes**
- **Large regimes help by providing**
 - **accurate information about natural resource systems**
 - **conflict-resolution arenas**
 - **mechanisms to back up local monitoring and sanctioning**

Benefit-Cost Analysis of Beating the Tragedy

- **Users compare the expected net benefits arising from a new set of rules with the existing situation of no rules (or inadequate rules)**
- **The incentive to change for individual i:**

$$D_i = BN_i - BO_i$$

Benefit-Cost Analysis (cont.)

- **If the incentive to change is positive, then estimate:**
 - **(C1) time and effort costs to devise and agree upon new rules,**
 - **(C2) immediate costs of new strategies, and**
 - **(C3) long-term costs of monitoring and maintaining a system over time (given the norms of the community in which they live)**

When is Institutional Change Likely?

- If $(C1 + C2 + C3) > D_i$, then there will be no investment in change
- If $(C1 + C2 + C3) < D_i$ for all i , then change is highly likely, but *must* have:
- $(C1 + C2 + C3) < D_k$ for a minimum coalition to change the rules

Minimal Winning Coalitions May Be:

- **A majority of users**
- **Consensus**
- **Strong leader(s)**
- **Depends on collective choice rule**

Attributes of Resources and of Users

- **Affect each other**
- **Affect benefits and costs of institutional change**

Costs are Higher When:

- **Resource is very large or boundaries are difficult to mark**
- **Resource is unpredictable**
- **Users have not developed trust and reciprocity**
- **Users do not have prior experience with self-organization**

Benefits are Higher When:

- **Users are dependent on resource**
- **Users have a low discount rate**

Theoretical Puzzles

- **Size of group**
- **Heterogeneity**

Size of Group

- **As size of group changes, other variables change:**
 - transaction costs
 - each person's share of providing public goods
 - cost of monitoring behavior
 - influence on external authorities
- **No clear prediction for beating the tragedy**

Heterogeneity

- **So many kinds**
 - **wealth**
 - **information**
 - **interests**
 - **culture**

If Interests are Aligned:

- **When economically and politically advantaged have similar interests**
 - **may bear a larger proportion of costs of organizing**
 - **may bear a larger proportion of costs of provision**

If Interests are NOT Aligned:

- **The more powerful may fight to prevent self-organization**
- **May face high levels of conflict within a group**

Size and Heterogeneity

- **The debate focuses on the wrong variables**
- **Instead of size or heterogeneity, important to ask**
- **How size and heterogeneity affect benefit-cost calculus of those involved in negotiating and sustaining agreements**

Conclusions

- **Not all users of a commons will beat the tragedy**
- **In many cases, expectations are the opposite**
 - **Users will over-harvest unless efforts are made to change one or more of the variables affecting their perceived costs or benefits**

Given the number of variables affecting costs and benefits, many points of external intervention enhance or reduce the probability of users' agreeing upon and following rules that generate higher social returns

Lessons

- **Much to learn about how these variables operate interactively in field settings**
- **Need to pay special attention to measuring these variables in empirical studies so that growing theoretical consensus is empirically grounded**

Lessons (cont.)

- **External authorities can enhance the likelihood and performance of self-governing institutions**
- **Their actions can also impede these developments**
- **It is NOT whether all attributes are favorable but**
 - **the relative size of the expected benefits and costs as perceived by participants**

The Bad News

- **When users cannot communicate and have no way of gaining trust through their own efforts or with the help of the macro-institutional system within which they are embedded**
- **the tragedy of the commons is likely to occur**

The Partially Good News

- **If users can engage in face-to-face bargaining and have autonomy to change their rules, they may organize and beat the tragedy of the commons**
- **Whether they do depends on attributes of the resource system and the users themselves**
 - **how these affect the benefits to be achieved**
 - **how these affect the costs of achieving them**

Long-term Success

- **Depends on whether the institutions they design are consistent with design principles underlying robust, long-living, self-governed systems**
- **But -- that is a whole book**

The Challenge Ahead

- **The theory of collective action applied to the commons has advanced substantially in last decade since 1968**
- **Given the number and complexity of the variables involved, there is much work for us all to do**

Researchers Need to Do

- **in-depth case studies to understand complex interactions in field settings**
- **large N studies to test relative importance of diverse variables**
- **experimental studies of focused questions**
- **over-time studies given dynamic nature of problem**

Policymakers Need to Develop

- **legal environments that authorize users to take responsibility**
- **sources of accurate information about resource conditions**
- **fair, low-cost courts and other conflict resolution mechanisms**
- **programs that increase benefits that local users can achieve**

Resource Users Need to

- **create associations to share information**
- **search for ways of increasing the benefits of working together**
- **find ways of reducing the costs**
- **draw on cultural endowments and knowledge local resource to find innovative institutions that fit local conditions**