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Even though the concept of common ownership sounds ideal, it can be a recipe for resource depletion and economic disaster. Common ownership, unlike private ownership, leads to overuse. With a system of private property rights, an owner can seek damages in the court system if his property is damaged or destroyed. But the same cannot be said for common property, because joint ownership allows any party to use the resource as he or she sees fit. This situation creates incentives to use the resource now rather than later and to neglect it. In short, common property leads to abuse and depletion of the resource.

Consider global warming. Scientific evidence clearly links increasing amounts of CO_2 (carbon dioxide) in the atmosphere and global warming. This negative externality is caused by some but borne jointly by everyone. Because large CO_2 emitters consider only the internal costs of their actions and ignore the social costs, the amount of CO_2 released, and the corresponding increase in global warming, is larger than optimal. The air, a common resource, is being "overused" and degraded.

Private property rights give owners an incentive to maintain, protect, and conserve their property and to transfer it if someone else values it more than they do. How are those incentives different under a system of common ownership? Let's examine a real-world example of the tragedy of the commons: the collapse of cod populations off Newfoundland, Canada, in the 1990s. Over the course of three years, cod hauls fell from over 200,000 tons annually to close to zero. Why did the fishing community allow this to happen? The answer: incentives. Let's consider the incentives associated with common property in the context of the cod industry.


Incentives

1. *The incentive to neglect.* No one owns the ocean. As a result, fishing grounds in international waters cannot be protected. Even fishing grounds within territorial waters are problematic because fish do not adhere to political borders. Moreover, the fishing grounds in the North Atlantic cannot be maintained in the same way one can, say, check the oil in an automobile. The grounds are too large, and the cod population depends on variations in seawater temperature, salinity, and availability of algae and smaller fish to eat. The idea that individuals or communities could "maintain" a population of cod in this wild environment is highly impractical.
2. *The incentive to overuse.* Each fishing boat crew would like to maintain a sustainable population of cod to ensure future harvests. However, conservation on the part of one boat is irrelevant because other boats would catch whatever the first boat leaves behind. Because cod are a rival and finite resource, boats have an incentive to harvest as much as they can before another vessel does. With common resources, no one has the authority to define how much of a resource can be used. Maintaining economic activity at a socially optimal level would require the coordination of thousands of vested interests, each of which could gain by free-riding. For instance, if a socially responsible boat crew (or country) limits its catch in order to protect the species from depletion, this action does not guarantee that rivals will follow suit. Instead, rivals who disregard the socially optimal behavior stand to benefit by overfishing what remains.

Because cod are a common resource, the incentives we discussed under a system of private ownership do not apply. With common property, resources are neglected and overused.

Common resources, such as cod, encourage overuse (in this case, overfishing).

Possible Solutions to the Tragedy of the Commons

Preventing the tragedy of the commons requires planning and coordination. Unfortunately, in our cod example, officials were slow to recognize that there was a problem with Atlantic cod until it was too late to prevent the collapse. Ironically, just as they placed a moratorium on catching northern cod, the collapse of the fish population became an unprecedented disaster for all of Atlantic Canada's fisheries. Cod populations dropped to 1% of their former sizes. The collapse of cod and many other species led to the loss of 40,000 jobs and over $300 million in income annually. Because communities in the affected region relied almost exclusively on fishing, this outcome crippled their economies.

The lesson of the northern cod is a powerful reminder that efforts to avoid the tragedy of the commons must begin before a problem develops. For example, king crab populations off the coast of Alaska have fared much better than cod, thanks to proactive management. To prevent the collapse of the king crab population, the state and federal governments enforce several regulations. First, the length of the fishing season is limited so that populations have time to recover. Second, there are limitations on how much fishing boats can catch. Third, to promote sustainable populations, only adult males are harvested. It is illegal to harvest females and young crabs, because these are necessary for repopulation. Government regulations like these help avoid a tragedy of the commons.

Trade-offs

Nobel-winning economist Elinor Ostrom examined how some commons are sustainably managed without government, despite the tragedy of the commons and free-rider problems. She understood many of the problems we face today. "[N]o one communicates, everyone acts independently, no attention is paid to the effects of one's actions, and the costs of trying to change the structure of the situation are high."* Her advice was for individuals to communicate often with one another, in order to develop shared norms from which intuitional arrangements would naturally arise to address common-resource dilemmas.

Can the misuse of a common resource be foreseen and prevented? If predictions of rapid global warming are correct, our analysis points to a number of solutions to minimize the tragedy of the commons. Businesses and individuals can be discouraged from producing emissions through carbon pricing, which charges firms by the ton for the CO_2 they put into the atmosphere. This policy encourages parties to internalize the negative externality, because carbon pricing acts as an internal cost that must be considered before creating carbon pollution.

Cap and trade
is an approach used to curb pollution by creating a system of emissions permits that are traded in an open market.

Another solution, known as **cap and trade**, is an approach to emissions reduction that has received much attention lately. The idea behind cap and trade policy is to encourage carbon producers to internalize the externality by establishing markets for tradable emissions permits. As a result, a profit motive is created for some firms to purchase, and others to sell, emissions permits. Under cap and trade, the government sets a *cap*, or limit, on the amount

*Source: Elinor Ostrom. *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990).

of CO_2 that can be emitted. Businesses and individuals are then issued permits to emit a certain amount of carbon each year. Also, permit owners may *trade* permits. In other words, companies that produce fewer carbon emissions can sell the permits they do not use. By establishing property rights that control emissions permits, cap and trade causes firms to internalize externalities and to seek out methods that lower emissions. Global warming is an incredibly complex process, but cap and trade policy is one tangible step that minimizes free-riding, creates incentives for action, and promotes a socially efficient outcome.

What is the best way to curb global warming?

Cap and trade is a good idea, but there are issues that must be overcome to make it work effectively. For example, cap and trade presumes that nations can agree on and enforce emissions limits, but international agreements have proved difficult to negotiate. Without binding international agreements, nations that adopt cap and trade policies will experience higher production costs, while nations that ignore them—and free-ride in the process—will benefit.

Trade creates value

ECONOMICS IN THE REAL WORLD

THE GREAT PACIFIC GARBAGE PATCH

The Great Pacific Garbage Patch is an immense swirl of floating debris in the central North Pacific Ocean. It was first discovered in 1988 and is roughly twice the size of Texas! One would think that an environmental calamity of that scale would prompt significant intervention. That has not happened, because no one person or country "owns" the open Pacific. When trash makes its way out to sea from the shorelines of the Philippines, Vietnam, China, Japan, South and North Korea, Russia, Canada, the United States, and Mexico, it all eventually ends up in the Garbage Patch.

Can anything be done to clean up the Great Pacific Garbage Patch?

The Great Pacific Garbage Patch is an extreme example of the tragedy of the commons. Its tragedy is especially striking because many people care deeply about marine quality. The tragedy occurs because no one individual, group, or country has the means to solve the problem on its own. Even if you and I, and all our friends, consciously make sure we never let any trash enter the ocean, this won't stop debris from elsewhere. Likewise, if Japan unilaterally decided to filter the outflow from all its rivers before entering the ocean, debris from other countries would still litter the garbage patch. Complicating matters, once in the ocean the debris is hard to detect from satellites and even harder to collect and dispose of properly. The only real solution would be a cooperative agreement among all North Pacific Rim nations to filter ocean-bound debris. That's a very expensive proposition to a problem in a location so remote that it is out of sight, and therefore, out of mind.