

Common-Property Resources

related to stuff in KW Chapter 17
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Resources, as you know, are things that are combined with other things to produce the things that we want: inputs into the production of goods and services

Examples include capital, labor, land, minerals, forests, fish, animals, ecosystems, the atmosphere, natural areas, watersheds, oceans, etc.

Resources are scarce: there are not enough to produce everything everyone will ever want. This scarcity creates THE ECONOMIC PROBLEM (opportunity cost)

- 1 Most resources are *congestible* (*rivalrous in the words of KW*); this means that if some of the resource is used for one purpose the same chunk cannot be used for another purpose: one use precludes another use.

Examples:

- Labor used to produce widgets cannot be used to produce snerds
- A fish that end up in my mouth cannot end up in your mouth.
- You cannot catch a fish that I catch and eat.
- If water is used to store pollutants it cannot also be a drinking source or a place to raise fish.
- The same gallon of gasoline cannot run both your and my car.

If gasoline was not congestible, we all could burn the same gallon of gas.¹
(Note that public goods are not congestible.)

For the rest of this lecture, we will **consider only** congestible resources.²

¹Note that this does not imply that we could all drive forever on this one single gallon of gas. It means that we could all drive, on that single gallon, as far as the gallon would take us in our car.

²CP resources and *public goods* are not the same thing. The last lecture was on public goods

Consider congestible resources that have a zero price: everyone can take as much of the resource as is available without having to pay for the resource: it has a zero price. Such resources are called *common-property resources*, hereafter CP resources.³

The lack of enforceable property right for the resource puts a zero price on it: there is no gate-keeper to collect

Another way to define a CP resource is to say it is a **congestible** and **scarce** resource to which access is not controlled.

[An aside: one can imagine a resource that is open-access, and congestible, but not scarce (supply is greater than demand at a zero price). Such resources are not CP resources as I am using the term.⁴]

CP resources are a **major cause of market failure**.

That is, a scarce resource is common property if no one effectively owns the resource. If no one can control access to a resource then there is no "price" that must be paid to acquire the resource.

While few resources in this world are pure common-property resources (access to them is completely uncontrolled), access to many environmental resources is largely uncontrolled, or controlled to only a limited extent.

Are the contents of your fridge a common property resource?

What features would your fridge and its content have if the contents were CP? You probably wouldn't be able to keep beer in stock – you would not be able to sell the beer at a positive price (why would anyone pay if they can have it for free)—its stock size (the quantity of beer) would be driven down to inefficient levels, possibly to extinction.

A common-property fishery causes the market to fail, so will a common-property oil field, a common-property wilderness area, a commonly-property

³One has to be a bit careful with the adjective "common-property." it suggests, incorrectly, that the the resource is commonly owned, as in, "Yellowstone National Park is commonly owned by the American people." A better adjective might be "uncontrolled" as in access to it is not controlled—there is no gatekeeper.

Note that there can be, on paper, legal ownership , but with no effective control. This is often the situation in poor countries with weak governments.

The word "common" comes from "common's the center of towns in England and New England where everyone could graze their animals. As in the "Boston Commons."

⁴In explanation: efficiency requires that such resources have a zero price. Efficiency requires that everyone consumes as much as they want. Consider Adam and Eve in the garden living next to a gigantic lake: efficiency requires that they both consume as much as they want, without restriction.

air space, a common- property aquifer, a common-property rain forest, and a common-property road.⁵

The common-property nature of many animals is a significant contributor to their being endangered.

The common-property nature of the air in many places is a major reason for excessive air pollution from an efficiency perspective.

⁵ Most roads in the U.S. are CP resources. Toll roads are not CP resources.

2 Consider commercial fishermen who fish the open seas⁶

They produce caught fish, which they sell.

Inputs into the production of caught fish include labor, capital, and fish swimming around in the open ocean.

The capital and labor is used to get the fish out of the water and onto the dock are not common-property resources, so must be paid for.

If the fish stock is owned (e.g. a commercial fish farm), the fisherman/harvester would have to pay the owner for each fish harvested, and the owner would charge an amount sufficient to cover the decreased value of the stock because it is reduced in size by the harvest.

Put simply, if the stock is owned, the fisherman will have to pay the opportunity costs of all of the inputs its uses to produce docked fish, including what is lost when fish are removed (harvested) from the stock.

Alternatively, if the stock is common property with no owner to charge for harvesting from the stock, the commercial fisherman will **not** take into account the opportunity cost to society of reducing the stock because he or she will not have to pay this cost (the social cost of fishing will be greater than the private cost.)

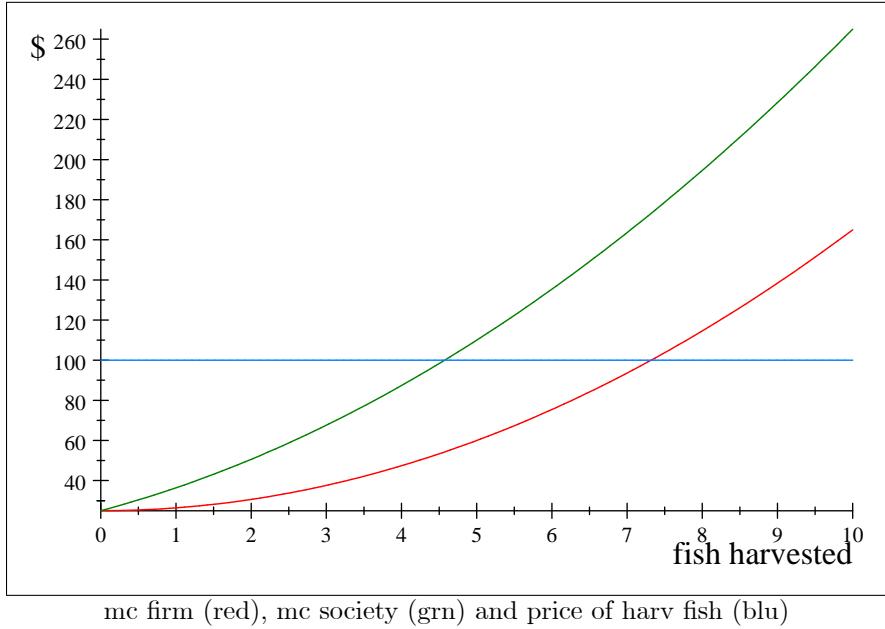
A commercial fisherman will harvest fish up the point where $p_f = MC_{priv}(f)$ where p_f is the price the fisherman can sell a harvested fish (the dock price)

To achieve the efficient harvest from society's perspective we need $MC_{priv}(f) = MC_s(f)$

Let p_{wf} be the price of a fish in the ocean, what the owner charges the fisherman to remove a fish from the owner's stock.

If there is no effective owner, $p_{wf} = 0$ and $MC_{priv}(f) < MC_s(f)$

⁶The open seas are parts of the oceans that are not in the jurisdiction of any country or international organization.



That is, when a scarce input is free, people will overuse it – not surprising. Many of the ocean's fisheries are or have been common-property resources.



- 2.1 For some, maybe me, driving country roads, drinking beer, and shooting cows is fun. But, unfortunately, I don't do it very often; there is a risk involved; it is a felony

I missed and shot a large pig.



Property rights for cows are well-defined and have a long history of enforcement; in the old west, cattle rustlers were hanged, it was a capital offense, probably still is in Texas, many things are.

Why I don't shoot very many cows.

The police would stop me, I would confess (I get nervous and confess, even at Customs), and straight to jail I would go: a place with big guys who might find me cute, or, at least, a new, but old, face.

So, if I want to shoot cows, I need to make prior arrangements with the rancher: knock on the door, offer him a couple grand for each cow I want to shoot, and pay in advance (unless we have already set up a PayPal account).

Ranchers will be happy to oblige if my willingness-to-pay-to-shoot is high enough.⁷ While my willingness-to-pay-to-shoot is positive, it is not high enough to entice the rancher, so I don't harvest many cows.

⁷There are plenty of private game ranches, where the owner raises the animals (deer, elk, etc.) and you can shoot one, for a hefty price.



2.1.1 But, what if all the ranchers lost control of their cows (“Cows gone wild” - the movie) and there is no sheriff to chase and hang the criminals.

I would get to shoot cows for free; I would still have to buy gas, beer and bullets, but would not have to pay the opportunity cost associated with the loss to society because the world has one less cow. Cows would be over harvested from society's perspective, a market failure.

Buffaloes used to be common-property resources and there were millions of them. What happened to them all? Dudes like Buffalo Bill could buy a box of bullets and a train ticket from St. Louis to Denver; then shoot, through the train window, a few hundred buffaloes—a way to pass the time on the train. How do you think he got his nickname? There was a loss to society but not to Bill, Bill was maximizing his utility



3 Why are some resources common property but many others not?

In the beginning, God created the heavens and the earth

And “In the beginning” there was no need to control access to resources because resources were not scarce

3.1 Most resources are now scarce but when man first arrived on the scene, scarcity was not a big issue – big garden with only two residents and a talkative snake.

All resources started off as common property but now access is controlled for many of them.

Why? There is a large profit incentive to find a way to control access to a scarce resource. (Implementing a way to control access leads to profits, and, as a by-product, a much more efficient use of the resource.)



However, even now, after years of private-property capitalism, there remains resources that are both terribly scarce and effectively common property.

This happens, in part, because the characteristics of some natural resources make them expensive for either a private agent or the government to define and enforce property rights.

Think about why cows are not common property, but many ocean fish are?

Cows were bred to minimize the cost of controlling them: stupid, can't jump over fences, easy to spot, cheap to brand, kids stand next to mom, and willing to wait in line to be slaughtered – how convenient.

Wild fish, on the other hand, are very difficult to keep track off. Maybe we need to breed domestic fish who don't like to run around. Wait a minute—We are, we do!⁸

There are cultural and historical reasons that some resources remain common property. People who exploit common-property resources get very upset when someone suggests they should pay to use the resource. “My father hunted here,

⁸More than half of the fish currently consumed are domestic fish (raised on farms).

my grandfather hunted here, my great-grandfather . . . It is my god-given right.” I have had guys with guns say that to me while they were standing in the middle of my driveway.

Besides, selling stuff like clean air to the highest bidder makes many people queasy, not economists, but maybe economists are a different species. That is, some people get queasy with the idea of buying and selling certain scarce resources.

4 John Wayne, then barbed wire, reduced the cost of enforcing property rights in the old west.

John was a famous movie cowboy—a man’s man.⁹ You’ve seen the movie. The old, widowed farmer and his beautiful daughter, Thelma, struggle to grow corn on their Kansas homestead, their crops unfenced.

The local ranchers, a selfish, profit-maximizing bunch, drive their cattle to Kansas City right through the corn fields (shortest route), destroying much of the crop, and dooming the farmer to poverty.

Thelma before John and before barbed wire, standing near a crummy wooden fence

⁹Call your parents or grandparents and ask who John Wayne was.



An old dad with a rusty gun is not enough to get the ranchers to lengthen their journey and take a detour around the ranch. Dad can't enforce his property rights.



In the spring, John Wayne appears; he falls for the daughter; takes sympathy on the father, and with his gun, muscles, and swagger scares off the cowboys and cattle.



The farmer pays for this in terms of grandchildren that look like John Wayne. But over the years, **Thelma's love for John wanes**, but what can she do, if she dumps him, back will come the cattle drive and the kids will starve.

4.1 Then barb wire is invented, greatly decreasing the cost of controlling access to the farm.¹⁰

Thelma dumps John after he put up the fence – he is now redundant – she runs the farm, and grandpa lives out his golden years watching his corn and grandchildren grow.

Barb wire changed the west (very very true). Barb wire made land use more efficient because it decreases the cost of protecting property rights.

Can you think of other inventions (technological advances) that significantly decreased the cost of enforcing property rights?

Branding cattle? What sorts of technologies does the U.S. use to control access to the U.S.? THE TRUMP WALL?

Have there been major advances in those technologies? How about the property rights for your cell phone? Or devices that determine whether your car is in toll lane.

¹⁰http://en.wikipedia.org/wiki/Barbed_wire