

1.3 – Property Rights & Transaction Costs

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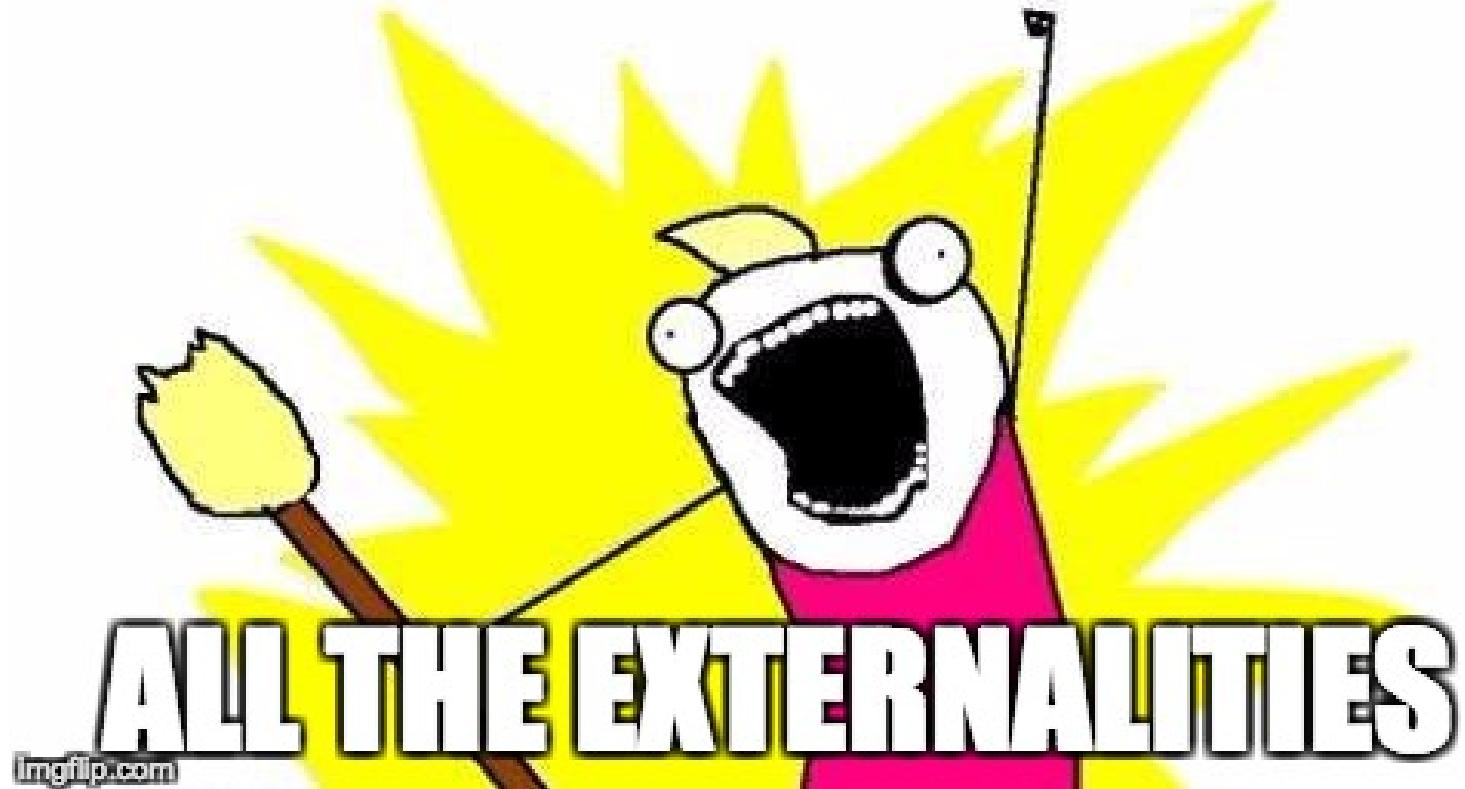
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Last Class...(Maybe)



INTERNALIZE



Takeaways from Coase I



Ronald H. Coase

(1910-2013)

Economics Nobel 1991

- **Externalities** outside the market system of prices are a problem
- Externalities can be framed as a problem of **property rights**
- Exchange is really about property rights over goods and services, (not just the goods themselves)
- Property rights can internalize externalities

Takeaways from Coase II



Ronald H. Coase

(1910-2013)

Economics Nobel 1991

- "**Coase Theorem**": if transaction costs are low, parties will bargain to the efficient outcome regardless of who has property rights
- Coase: transaction costs **are** high, so **it matters** how property rights are allocated!
- Look at real world institutions

Another Classic Economic Problem



- **Tragedy of the commons:** multiple people have unrestricted access to the same **rivalrous** resource
- **Rivalry:** one use of a resource removes it from other uses

Hardin, Garrett, 1968, "The Tragedy of the Commons," *Science* 162(3859):1243-1248

Another Classic Economic Problem



- Cannot exclude others
- No responsibility over outcome
- Incentive to **overexploit** and **deplete** resource (before others do)
- A negative externality on others

Classic Solution: Property Rights



- **Property rights:** socially agreed upon rules that determine how resources are used
- Primary right is the **right to exclude others** from using a rivalrous resource

Property Rights



“There is nothing which so generally strikes the imagination, and engages the affections of mankind, as the right of property; or that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe,” (Book II, Chapter 1).

Blackstone, Sir William, 1765-1769, *Commentaries on the Laws of England*

Sir William Blackstone

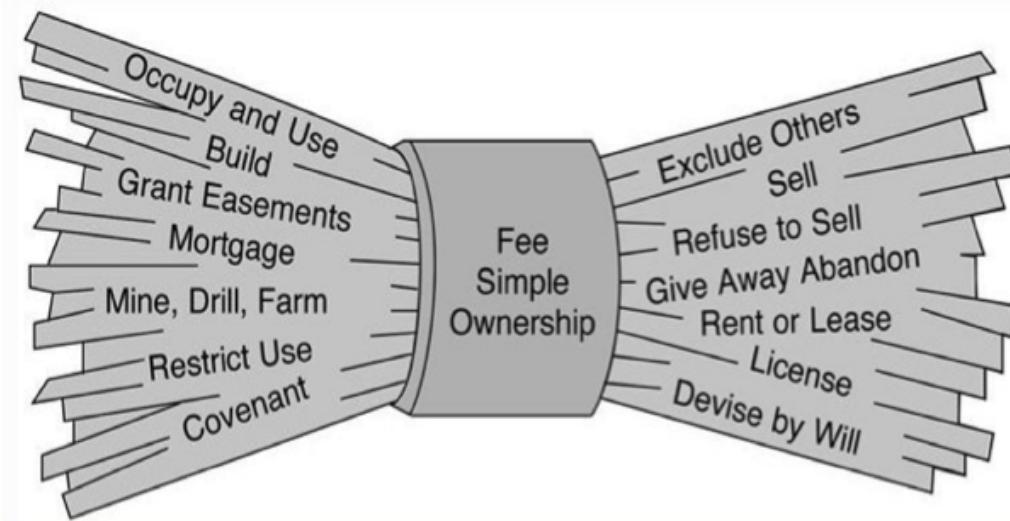
Property Rights



“**Property** is a bundle of legal rights over resources that the owner is free to exercise and whose exercise is protected from interference by others” (Cooter and Ulen, p.73)

- This bundle contains a lot of rights, to:

possess, use, develop, improve, transform, consume, deplete, destroy, sell, donate, bequeath, transfer, mortgage, lease, loan, or exclude others



Property Rights



- Three important legal points:
 1. These rights are **impersonal** – they attach to property, not persons
 2. Owner is **at liberty** to exercise rights over her property (law neither forbids nor obliges her to)
 3. Others are **forbidden to interfere** with owner's exercise of her rights



Property Rights Internalize Externalities



- Links ownership and responsibility
- Causing harm to others' property \implies liability for damages
- Externalities as (unenforced) property rights

"Good fences make good neighbors"





The Benefits & Costs of Property Rights

Why Do We Need Property Law?



- A solution to the tragedy of the commons
- Imagine two neighboring farmers
 - game theoretic interaction
 - each farmer can either **Farm** or **Steal**



Why Do We Need Property Law?



- Suppose:
 - crops are valued at 15
 - planting & watering costs 5
 - stealing costs 3



Why Do We Need Property Law?



- Suppose:
 - crops are valued at 15
 - planting & watering costs 5
 - stealing costs 3
- With no legal system, the game looks like:

Farmer 1

		Farmer 2	
		Farm	Steal
Farmer 1	Farm	10	-5
	Steal	12	0
Farmer 2	Farm	10	12
	Steal	-5	0

Why Do We Need Property Law?



- **Nash Equilibrium:** (**Steal, Steal**)
- **Socially optimal equilibrium:** (**Farm, Farm**)

Farmer 1

		Farmer 2	
		Farm	Steal
Farmer 1	Farm	10	-5
	Steal	12	0
Farmer 2	Farm	10	12
	Steal	-5	0

Property Is a Necessary Part of the Solution



“But although men can maintain a small uncultivated society without government, they can't possibly maintain a society of any kind without justice, i.e. without obeying the three fundamental laws concerning the stability of ownership, its transfer by consent, and the keeping of promises.”

Hume, David, 1751, *Enquiry Concerning the Principles of Morals*

David Hume

1711-1776

Property Is a Necessary Part of the Solution



- Suppose there are many farmers that face the same problem
- They recognize that establishing rules of property and punishing theft achieves the social optimum
 - Setting up a property law system (and someone to enforce it) has costs c
 - The punishment to theft is P
- If $10 - c > 12 - P$, then (**Farm**, **Farm**) becomes an equilibrium
- What are the costs of property rights, c ?

		Farmer 2	
		Farm	Steal
Farmer 1	Farm	10- c	-5- c
	Steal	12- P	- P
	Farm	10- c	-5- c
	Steal	12- P	- P

Property Rights Internalize Externalities



Harold Demsetz
1930-2019

“A primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities. Every cost and benefit associated with social interdependencies is a potential externality. One condition is necessary to make costs and benefits [become] externalities. The cost of a transaction in the rights between the parties (internalization) must exceed the gains from internalization. In general, transacting cost can be large relative to gains because of ‘natural’ difficulties in trading or they can be large because of legal reasons,” (p.348).

“Property rights develop to internalize externalities when the gains from internalization become larger than the costs of externalization,” (p.350).

But Property Rights Are Costly



- Many decisions impose an externality on other parties
- Externalities can be solved by defining property rights and permitting exchanges
- There are always transaction costs to exchange
- If transaction costs are low, efficient to create & exchange property rights
- **If transaction costs are high, *inefficient* to create property rights!**



It's Just a Cost-Benefit Calculation



- Essentially, does **MB > MC** of internalizing the externality?
 - **If yes:** create property rights, internalize externalities
 - **If no:** leave as commons, incur externalities
- Exogenous shocks — opening new markets, technological change, etc — can change this equilibrium!



Demsetz' Example: Efficient to Keep as a Commons



Harold Demsetz

1930-2019

“A close relationship existed, both historically and geographically, between the development of private rights in land and the development of the commercial fur trade.

“Because of the lack of control over hunting by others, it is in no person’s interest to invest in increasing or maintaining the stock of game. Overly intensive hunting takes place.

“Before the fur trade became established, hunting was carried on primarily for purposes of food and the relatively few furs that were required for the hunter’s family. The externality was clearly present...but these external effects were of such small significance that it did not pay for anyone to take them into account.” (p.351).

Demsetz, Harold, 1967, "Towards a Theory of Property Rights," *American Economic Review* 57(2): 347-359

...Until an Exogenous Change



...Until an Exogenous Change



Harold Demsetz

1930-2019

“[T]he advent of the fur trade had two immediate consequences. First, the value of furs to the Indians was increased considerably. Second, and as a result, the scale of hunting activity rose sharply. Both consequences must have increased considerably the importance of the externalities associated with free hunting. The property right system began to change.”

“[Algonkians and Iroquois] divide themselves into several bands in order to hunt more efficiently. It was their custom...to appropriate pieces of land about two leagues square for each group to hunt exclusively. Ownership of beaver houses, however, had already become established, and when discovered, they were marked. A starving Indian could kill and eat another's beaver if he left the fur and the tail.”

“The principle of the Indians is to mark off the hunting ground selected by them by blazing the trees with their crests so that they may never encroach on each other...By the middle of the century these allotted territories were relatively stabilized,” (p.352).

Tech. Change Can *Reduce Costs* of Property Rights



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Tech. Change Can *Raise the Benefits of Property Rights*



UNITED STATES FREQUENCY ALLOCATIONS THE RADIO SPECTRUM

RADIO SERVICES COLOR LEGEND

AERONAUTICAL MOBILE	LAND MOBILE	INMATELLITE	RADIONAVIGATION
AERONAUTICAL MOBILE SATELLITE	LAND MOBILE SATELLITE	INMATELLITE SATELLITE	RADIONAVIGATION SATELLITE
AERONAUTICAL RADIONAVIGATION	LAND MOBILE RADIONAVIGATION	INMATELLITE RADIONAVIGATION	RADIONAVIGATION RADIONAVIGATION
AMATEUR	MARITIME MOBILE	MARITIME MOBILE	MARITIME MOBILE
AMATEUR SATELLITE	MARITIME MOBILE SATELLITE	MARITIME MOBILE SATELLITE	MARITIME MOBILE SATELLITE
BROADCASTING	MARITIME RADIONAVIGATION	MARITIME RADIONAVIGATION	MARITIME RADIONAVIGATION
BROADCASTING SATELLITE	MARITIME RADIONAVIGATION SATELLITE	MARITIME RADIONAVIGATION SATELLITE	MARITIME RADIONAVIGATION SATELLITE
BROADCASTING (TV CHANNELS 1-6)	MARITIME RADIONAVIGATION (TV CHANNELS 1-6)	MARITIME RADIONAVIGATION (TV CHANNELS 1-6)	MARITIME RADIONAVIGATION (TV CHANNELS 1-6)
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ACTIVITY CODE

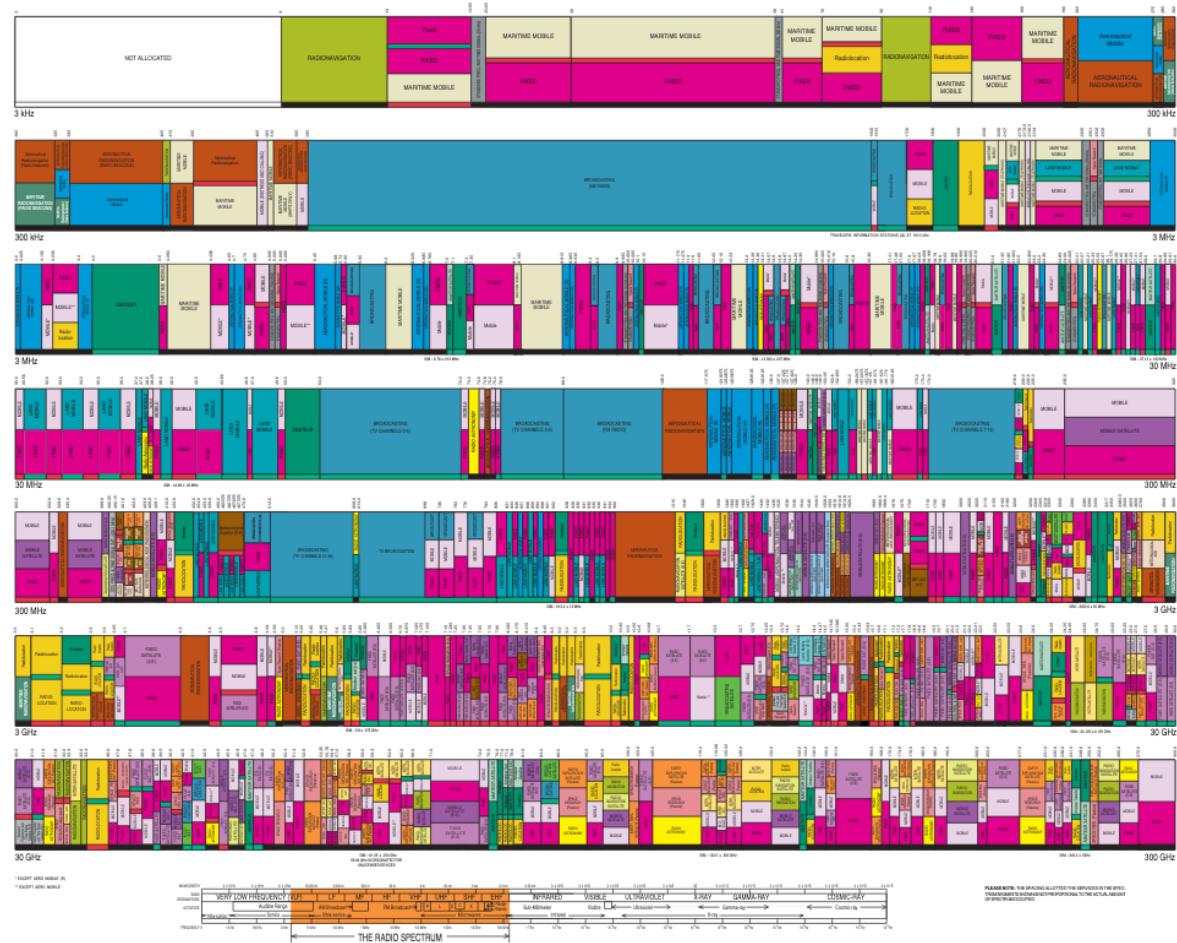
GOVERNMENT EXCLUSIVE	GOVERNMENT GOVERNMENT SHARED
NONGOVERNMENT EXCLUSIVE	

ALLOCATION USAGE DESIGNATION

SERVICE	EXAMPLE	DESCRIPTION
Primary	FM	Capital Letters
Secondary	NB	1st Capital with lower case letters

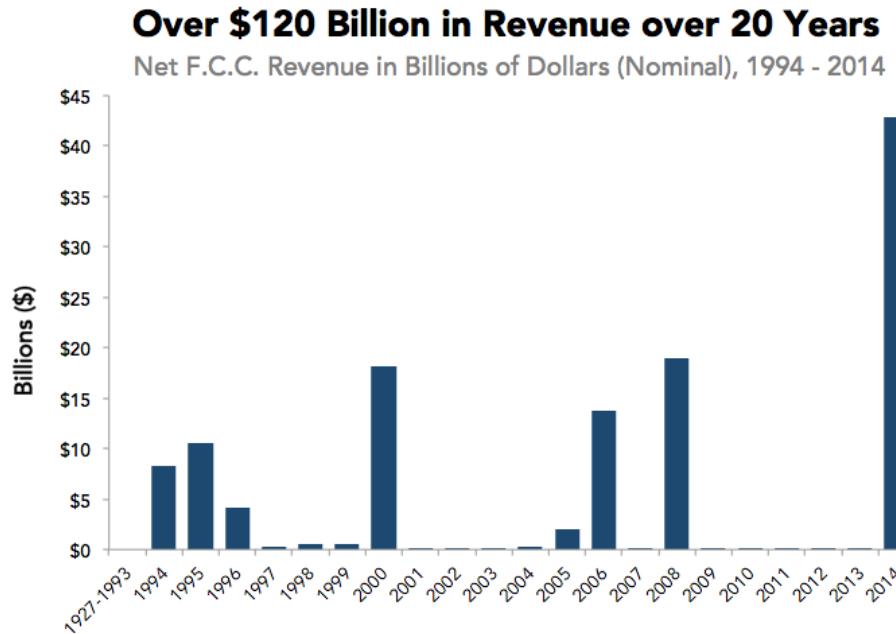
This chart is a partial single point-in-time portion of the Table of Frequency Allocations used by the Federal Communications Commission. It is not a complete listing of all frequency allocations. To obtain a complete listing, go to the Table of Frequency Allocations. For complete information, users should contact the U.S. Department of Commerce, National Telecommunications and Information Administration, Office of Spectrum Management.

U.S. DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Office of Spectrum Management
October 2003



The electromagnetic spectrum allocated by the Federal Communications Commission to private parties ([high res](#))

Tech. Change Can *Raise the Benefits of Property Rights*



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Summarizing Coase & Demsetz



- **Coase:** if property rights are clearly defined and tradeable, we'll get efficient outcomes
 - Fix externalities by expanding property rights
- **Demsetz:** yes, but this comes at a **cost!**
 - Property rights will expand only when the **benefits outweigh the costs**
 - Either because benefits rise, or costs fall



Of Course, Coase Knew About Transaction Costs!



Ronald H. Coase
(1910-2013)

Economics Nobel 1991

“If market transactions were costless, all that matters (questions of equity apart) is that the rights of the various parties should be well-defined and the results of legal actions easy to forecast.

“But...the situation is quite different when market transactions are so costly as to make it difficult to change the arrangement of rights established by the law.”

“In such cases, the courts directly influence economic activity.”

“Even when it is possible to change the legal delimitation of rights through market transactions, it is obviously desirable to reduce the need for such transactions and thus reduce the employment of resources in carrying them out.”

Coase, Ronald H, 1960, “The Problem of Social Cost” *Journal of Law and Economics* 3: 1-44



Transaction Costs & Some Normative Prescriptions

Transaction Costs



- **Transaction costs:** the costs of voluntary exchange (or markets)
 - **Search costs:** cost of finding trading partners
 - **Bargaining costs:** cost of reaching an agreement
 - **Enforcement costs:** **trust** between parties, cost of upholding agreement, dealing with unforeseen contingencies, punishing defection, using police and courts



Focus on Bargaining Costs



- Now that we have discussed bargaining, consider some types of associated transaction costs

1) Asymmetric information

- Lemons problem (Akerlof 1970)[†]
- Adverse selection & moral hazard



[†] I cover this in detail in [this game theory lecture](#).

Focus on Bargaining Costs



- Now that we have discussed bargaining, consider some types of associated transaction costs

2) Private information

- not knowing each other's BATNAs
- bargaining *requires* revealing private information
- parties reluctant to divulge information



Focus on Bargaining Costs



- Now that we have discussed bargaining, consider some types of associated transaction costs

3) Large number of parties

- free riding, public goods problem, hold out problem



Focus on Bargaining Costs



- Now that we have discussed bargaining, consider some types of associated transaction costs
- 4) **Uncertainty** about property rights, BATNAs, the value of the property, etc



Focus on Bargaining Costs



- Now that we have discussed bargaining, consider some types of associated transaction costs

5) Enmity between parties

- emotions cloud rationality
- can you negotiate with someone you consider a mortal enemy?
- after trial, some parties *refuse* to bargain!



Focus on Bargaining Costs



- Now that we have discussed bargaining, consider some types of associated transaction costs

5) Enmity between parties

- emotions cloud rationality
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- after trial, some parties *refuse* to bargain!



Transaction Costs and the Law



- When transaction costs are low
 - bargaining is easy
 - initial allocation of property rights doesn't matter, can trade until reach efficient outcome

- When transaction costs are high
 - bargaining is hard
 - initial allocate of property rights *does* matter, since trade may not occur (or is costly)



Two Normative Approaches to Law & Economics



Design the law to:

1) Minimize the cost of bargaining

“Structure the law so as to remove the impediments to private bargaining”



Two Normative Approaches to Law & Economics



Design the law to:

1) Minimize the cost of bargaining

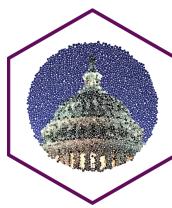
“Structure the law so as to remove the impediments to private bargaining”

2) Minimize the need for bargaining

“Structure the law so as to minimize the harm caused by failures in private agreements”



Two Normative Approaches to Law & Economics



- Compare the **costs** of each approach:
- When **transaction costs are low** and **information costs are high**, structure the law so as to **minimize transaction costs**
- When **transaction costs are high** and **information costs are low**, structure the law so as to **allocate property rights to whomever values them the most**



Some Common Law Terms & History



- We often summarize by referring to the difference between:
- “**Property rule**”: equitable relief for **appropriation**, **trespass**, **interfering** with another's property
 - More common in law of property
- “**Liability rule**”: **damages** awarded for broken promises and accidents
 - More common in law of contracts & torts



Farmer-Rancher Example



- **Example:** With Rancher's cattle straying onto Farmer's crops
- **Liability rule:** Court may require Rancher to compensate Farmer for **damages**
- **Property rule:** Court may **enjoin** Rancher from letting cattle trespass onto Farm (if Farmer found to have property right to be free of cattle's interference)



Three Ways to Protect Property Rights



1. **Property** rule/**injunctive** relief

- violation of entitlement punished as a **crime**
(not mere restitution owed)
- but entitlement is **negotiable** (owner can choose to sell or not exercise the right)



2. **Liability** rule/**damages**

- violations of entitlement require **compensation**
- Defendant pays **damages** to make the Plaintiff whole

3. **Inalienability** rule

- violations are punished as a **crime**

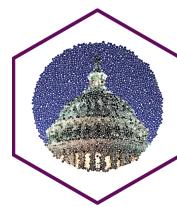
Efficient Remedies for Property Rights Violations



- Which remedy is most efficient in response to property violations?
- As per Coase (1960), **any rule leads to efficiency under no transaction costs**
- Injunctions are cheaper to implement
- Damages lead to more efficient outcomes when transaction costs are high



Efficient Remedies for Property Rights Violations



- When **transaction costs are low** and **information costs are high**, structure the law so as to **minimize transaction costs**

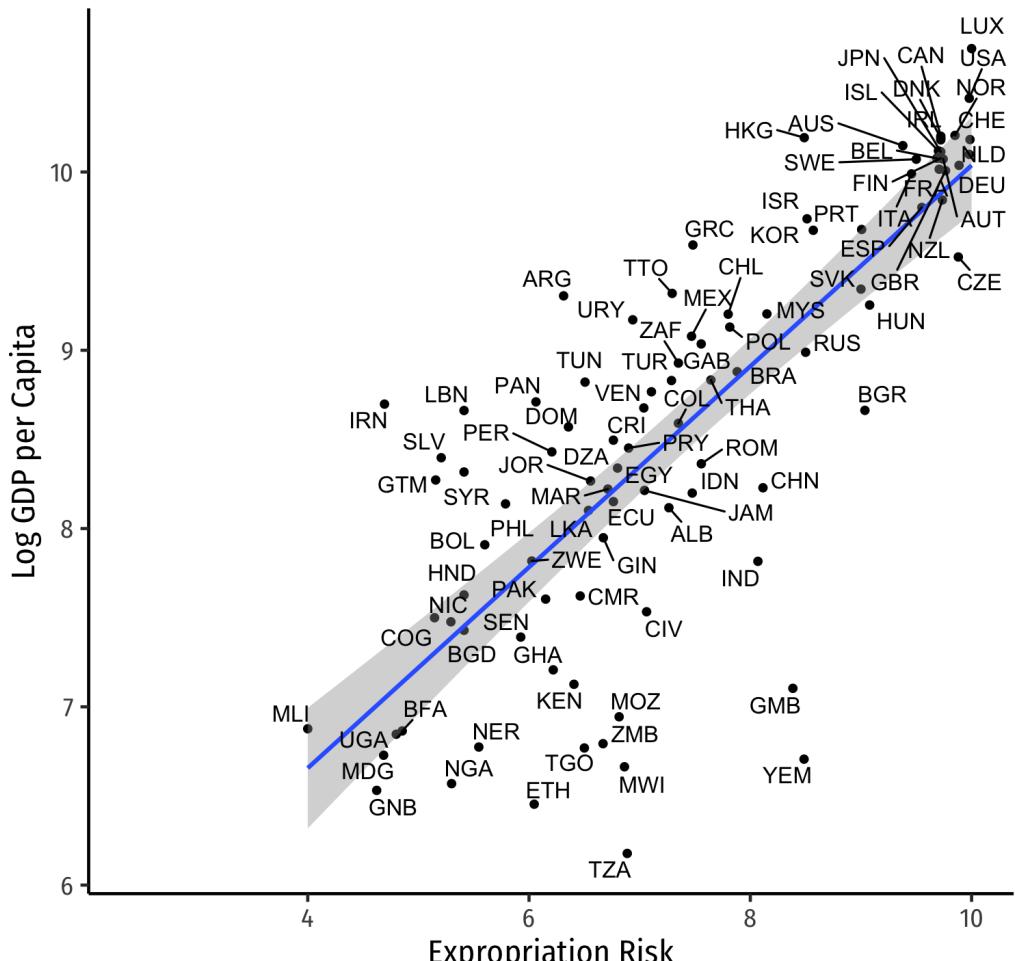
- **Property rule** (injunction) more efficient: clarify right and allow trade

- When **transaction costs are high** and **information costs are low**, structure the law so as to **allocate property rights to whomever values them the most**

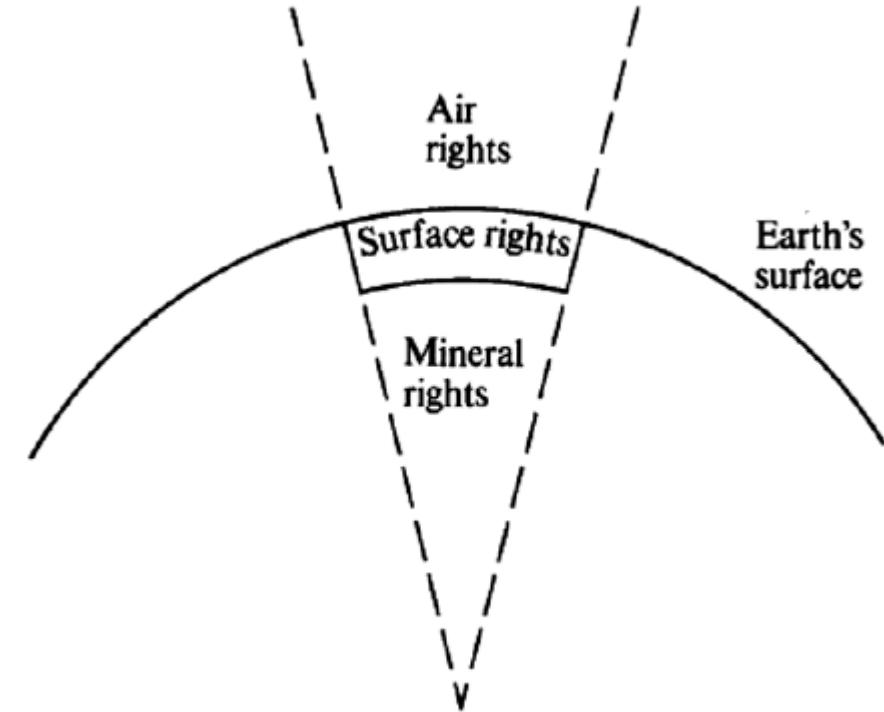
- **Liability rule** (damages) more efficient: give injurer right to violate entitlement when efficient, even without prior consent



In Aggregate: Property Rights Matter



Extra: Interesting Property Cases I



Hinman v. Pacific Air Transport 84 F.2d 755 (9th Cir. 1936)

Extra: Interesting Property Cases II



Jacque v. SteenBerg Homes Inc. 563 N.W. 2d 154 (Wis. 1997)