

# Innovation and choice

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# Jury members

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## General motivation

What is an innovation? new market or increase surplus in existing market

The problem of ex-ante contractability. (Incomplete Contracts, Grossman and Hart(1986))

Solution: Intellectual property, endogenize research, etc

Every right creates an obligation

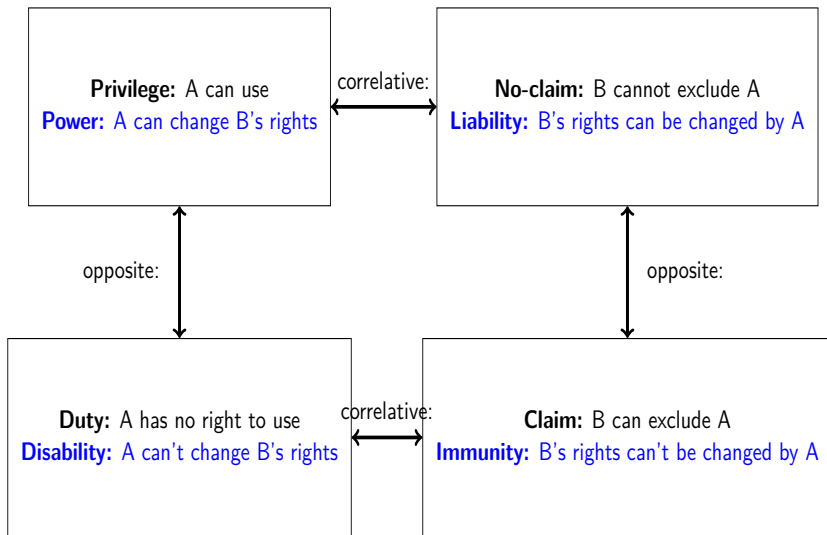


Figure: First order rights, Second order rights

# Structure

Economics: Which distribution of rights maximizes production?

First chapter, first order rights, the distribution of the right to use

Second chapter, second order rights, does the ability to alienate an asset necessarily increase welfare?

Third chapter, why do agents discount projects as they do?

# Piracy and network value



## Motivation: Piracy

The intellectual property claim: limiting entry → increases incentive to innovate.

The piracy claim: making piracy illegal → increases incentive to innovate.

The monopoly claim: If a one firm sells the asset and has control of the price → the price set will be above what is welfare maximizing.



## Questions

- 1) Does uniform enforcement of copyright increase innovation?
- 2) What kind of mechanism does social value enable?
- 3) Who benefits from piracy?
- 4) Is the incentive to improve the product independent of network value?

## Modeling components used

When a firm violates a copyright it is an infringement (tort)

When a consumer violates a copyright it is theft (criminal)

Digital goods have only fixed costs, marginal costs are zero

The subjective value of a good partly arises from group consumption

## Tentative answer 1

Does uniform enforcement of copyright increase innovation?

No

Causal Mechanism: Piracy may sometimes increase the payoff of innovators

## Tentative answer 2

What kind of mechanism does social value enable? **Social value is a substitute for competition**

**Causal Mechanism:** If the number of agents consuming a product increases its value, monopolist must try and expand its market

## Tentative answer 3

Who benefits from piracy? The firm may benefit and always consumers with a lower willingness to pay

**Causal Mechanism:** The firm may benefit by including lower willingness to pay agents by charging higher willingness to pay agents more

## Tentative answer 4

Is the incentive to improve the product independent of network value? **No**

**Causal Mechanism:** A high network value may be a substitute to innovation

## Cost side innovation with project variance

# Motivation

Buyouts claim: Having the option of being bought out can only increase innovation.

Industry consolidation as efficiency.



## Questions

- 1) Does the alienability of assets have a uniform effect (increases incentives)?
- 2) Do existing firms always have an incentive to allow buyouts?
- 3) Why does successful innovation often mean buyouts?

## Tentative answer 1

Does the alienability of assets have a uniform effect (increases incentives)? **No**

**Causal Mechanism:** The entrant does more damage to the incumbent than he gains in periods of intermediate development causing the incumbent to have a higher willingness to pay for those periods

## Tentative answer 2

Do existing firms always have an incentive to allow buyouts?

No

**Causal Mechanism:** The allowing buyouts can cause blackmail and pursuing of damage maximizing projects instead of profit maximizing

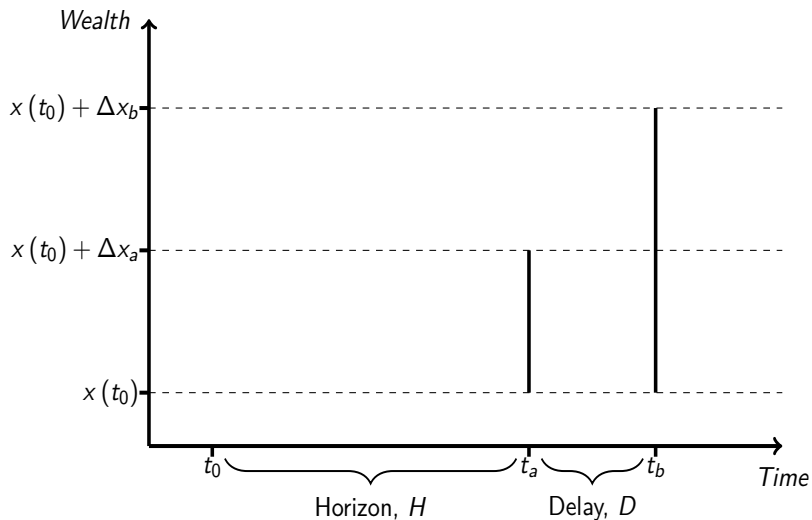
## Tentative answer 3

Why does successful innovation usually mean buyouts?

Because innovators purposefully choose projects with the intent of being bought out

Causal Mechanism: Entrants will prefer correlated projects

# Microfoundations of Discounting



## Discounting: motivation

Experimentally, people discount payment hyperbolically, yet there is variance

Firm criteria for investing is mostly based on exponential discounting (NPV)

Theory points to exponential discounting as profit maximizing

"Preferences" is used as an explanatory tool to reconcile exponential and hyperbolic

# The pros and cons of preferences

**Pro:** If we can characterize an agents preferences, we can predict an agents conditional behavior.

**Con:** We cannot explain why agent A and B have different preferences



## An alternative to preferences: Adaptation

Agents in economics have preferences that are independent of their environment, strict strategy/preference dichotomy

Biological agents preferences are adaptations, if it were conscious it would be a strategy.

## Some modelling choices that can be used:

Base assumption: Maximize growth of wealth

Some choices can affect future choices

Agents wealths can grow in different ways

They have different wealth levels

1,2,3  $\rightarrow$  can imply that exponential discounting is not always the best way to maximize wealth

# Questions

- 1) Why do agents have different ways of discounting?
- 2) How do we reconcile the normative method of discounting (exponential) and the descriptive method (hyperbolic)?
- 3) Can we draw out new falsifiable predictions from a unified framework?

# Tentative answer 1

Why do agents have different ways of discounting? **Agents discount because they maximize growth which depends on the environment**

**Causal Mechanism:** Growth depends on the kind of process that the agents face, which means their heterogeneity can be explained by the variation in their environment

## Tentative answer 2

How do we reconcile the normative method of discounting (exponential) and the descriptive method (hyperbolic)? **It depends on the agents time horizon**

**Causal Mechanism:**

**Multiplicative + Fixed = Exponential Discounting**

**Additive + Adaptive = Hyperbolic**

## Tentative answer 3

Can we draw out new falsifiable predictions from a unified framework? **Yes**

**Causal Mechanism:**

Additive + Fixed = Highest payout → unconstrained capacity and unscaleable project based firms don't discount

Multiplicative + Adaptive = Hybrid → constrained capacity with projects that depends on scale discount the most  
→ Wealth of agents can affect their discounting

Thank you for listening.

