



Higher School of Economics

**Center for Institutional
Studies**

Property Rights

what regimes exist and how they
emerge?

Property Rights Regimes

Individual Property

Collective property

Open Access Property



Number of Owners

Individual versus collective property

Collective property:

Gains

- Economy of scale in costs
- New financial opportunities

Problems

- Free-rider problem
- Over-use of resources





Tragedy of Commons

$i, i = 1, \dots, n$ farmers

g_i number of cows per farmer

c costs per cow

$$G = g_1 + \dots + g_n$$

$V(G)$ revenue from herd

$$V(G) > 0, V'(G) < 0, V''(G) < 0 \quad \text{if } G < G_{\max}$$

$$V(G) = 0 \quad \text{if } G \geq G_{\max}$$



Tragedy of Commons – individual decision

Each farmer max

$$g_i V(g_1 + \dots + g_{i-1} + g_i + g_{i+1} + \dots + g_n) - c g_i$$

$$V(g_i + g_{-i}^*) + g_i V'(g_i + g_{-i}^*) - c = 0$$

$$V(G^*) + \frac{1}{n} G^* V'(G^*) - c = 0$$

$$G^* = g_1^* + \dots + g_n^*$$



Tragedy of Commons – collective decision

$$\max G \cdot V(G) - G \cdot c$$

$$V(G^{**}) + G^{**} V'(G^{**}) - c = 0$$

$$G^* > G^{**}$$

G^{**} – *social optimum*

G^* – *individual decision*



Tragedy of Commons

The tragedy of the commons is an economic problem in which every individual tries to reap the greatest benefit from a given resource. As the demand for the resource overwhelms the supply, every individual who consumes an additional unit directly harms others who can no longer enjoy the benefits. Generally, the resource of interest is easily available to all individuals; **the tragedy of the commons occurs when individuals neglect the well-being of society in the pursuit of personal gain.***

Rent dissipation

The net income from the resources is dissipated through the interplay of competitive forces

* [Tragedy Of The Commons Definition | Investopedia http://www.investopedia.com/terms/t/tragedy-of-the-commons.asp#ixzz4PyaiLBZX](http://www.investopedia.com/terms/t/tragedy-of-the-commons.asp#ixzz4PyaiLBZX)



Collective property regimes work efficiently

Example: Irrigation systems in Nepal

- Nepal: Population – 18 mln., mostly concentrating in agriculture
- 650 000 hectares of land depend on irrigation systems
- High elevations along irrigation channels
- More than 60% of irrigation systems are farmer-operated



From farmer-operated systems toward state-operated ones



Traditional irrigation systems



New irrigation systems



Comparative efficiency of irrigation systems

	Farmer-operated irrigation systems	State-operated irrigation systems
Intensity of harvest at the beginning of the channel	246%	208%
Intensity of harvest at the beginning of the channel	237%	182%

State intervention haven't improved an efficiency of irrigation systems

How that could be explained?



Open access property

In some cases exclusive property rights are hard to establish

Examples: water resources, fisheries

Little incentives to preserve the resource and to make appropriate investments

Problems:

- Over-use
- Dissipation of rent
- No price signals (that are usually formed by exclusive rights)
- Transfer of rights is hard to organize



Example 1: Fishing sardines in California

Beginning of XX century: prosperous industry

WW I: increasing demand for (canned) food, intensification of fishing

Increase in numbers of fishermen and fishing boats

Use of more efficient fishing technologies

construction of floating cannery for the processing of sardines

End of 1930-s.: fishing sardines – one of the most profitable fishing industries in US (0.5 mln tons annually)

Beginning of 1970-s.: Depletion of resources

Decrease of annual catch by more than 20 times

Passive role of the state

End of commercial fishing of sardines



Example 2: Oil industry

Second part of XIX century in US: discovery of oil fields

Problems:

Loss of resources due to open access regime

Competition between owners of land plots

Oil over-production

High risks of fires and explosions

As a result:

Year 1910, California. Estimation of losses: 4-8 oil barrels (5-10% of total production)

Year 1914: Estimation of losses: USD 50 mln. (around 25% of total production)

Price drop





Source: <http://pronedra.ru/oil/2013/06/06/pervye-neftyaniki/>



Property Rights Regimes

	Expected gains	Expected costs
Individual Property	Higher than costs	Definable and enforceable at reasonable costs
Collective property	Relatively high	Definable and enforceable at shared reasonable costs
Open Access Property	Lower than costs	Costs to define and to enforce are extremely high



The Naive Theory of Property Rights Emergence

- **Change in technology**
 - Spillover effects
 - Change in demand for property rights
 - New rules, new property rights

Demsetz, Harold. "Toward a theory of property rights." *Classic Papers in Natural Resource Economics*. Palgrave Macmillan UK, 1974. 163-177.



The Naïve Theory

American and Canadian Indians

Close connection between development of private property rights in land and commercial fur trade

- **Common property on land (Hunting for food)**
 - Commercial trade
 - Change in relative prices
 - Increased demand for beavers (overhunting = food + fur trade)
 - **Property rights system began to change**



The Naive Theory: main points

State neutrality

- *De jure* establishment of rights occurred *de facto*

Evolution of property rights could be explained by changes

- In relative prices
- In production technologies
- In methods of enforcement

Efficiency of emerged property rights



Gold Rush

USA

- Initial conditions: State is too weak to intervene?
- Government policies?
- Results

Australia

- Initial conditions: State is too costly to refer to?
- Government policies
- Results







Example: Resource Conflict

The work of Libecap on the development of mineral rights and grazing rights in the U.S. shows how a lot of rights that emerged in the undeveloped parts of the Western USA emerged as demand for those goods developed.

Rights were adjusted to take into account high enforcement costs and sparsely populated lands.

Libecap, Gary D. "Property rights in economic history: Implications for research." *Explorations in Economic History* 23.3 (1986): 227-252.



The Naive Theory of Property Rights Emergence

Optimistic prediction of the naive model, that institutions are adjusted efficiently to changing circumstances, is a special case rather than a general rule.

Gary Libecap

In fact, one of the most evident lessons from history is that political systems have an inherent tendency to produce inefficient property rights, which result in stagnation or decline.

Douglas North



Why efficient property rights are so rare?

High probability of conflicts

Social welfare is not always maximized

Political forces are not always interested in economic development

Poverty, poverty, poverty...



Interest Groups

Regulations develop as the result of demands from different interest groups for governmental intervention

Inefficiency of property rights

