Law and Economics

Introduction to the Economic Approach to Law

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University of Mannheim - Fall 2022

Goal of the course

General goal: Present a *cohesive* and *formal* theory of pure Law through the lens of economics.

Main references:

- Miceli, T. J. (2017). *The Economic Approach to Law*. **Stanford University Press, 3rd edition**
- Cooter, R. and Ulen, T. (2016). *Law and Economics*. **Berkeley Law Books, 6th edition**

Legal Theory:

- Kelsen, H. (1997). *Introduction to the Problems of Legal Theory*. **Oxford University Press**

Structure

- Two meetings each week (Mon & Wed, 8:30 AM, Room S031).
- Questions encouraged.
- Office hours: Arranged via email.
- Assignments:
  - Problem sets (graded).
  - Open questions (mandatory but not graded). txt.
- Grading: PS (20%), Midterm (30%), and Final Exam (50%).

Communication

- Website: https://www.franciscopoggi.com/courses/

- Email: poggi@uni-mannheim.de
  - Questions, comments, etc.
  - Recommended subject: **Law and Econ - Fall 2022**

(Tentative) Topics

- **This week**: broad introduction and review of economic concepts.
- **Following weeks**:
  - Tort Law.
  - Property Law.
  - Intellectual Property Law.
  - Economics of Litigation.
  - Economics of Crime.

Categories in Law

Law: system of rules regulating actions, which might be enforced by the imposition of penalties.

Four major categories:

- Tort Law
- Contract Law
- Property Law
- Criminal Law

Tort Law

Tort Law

Area of the law that seeks to remedy losses or injury with monetary compensation.

Examples:

- Defamation,
- Medical malpractice,
- Defective products,
- Dog bite.

Contract Law

Contract Law

Area of the law that regulates legally binding agreements.

- Importance of consent.
- What contracts are legal?
- Breach of contract.

Property Law

Property Law

Area of law that governs ownership.

- Property is a *bundle* of rights.
- How are property rights initially assigned? What can be owned?
- What can owners do with their property?
- What are remedies for violation of property rights?

Criminal Law

Criminal Law

Related to *crime*. Prescribes conducts perceived as threatening, harmful, or otherwise endangering to the property, health, safety, and moral welfare of people.

- Emphasis on punishment/rehabilitation (instead of victim compensation): Fines, jail, capital and corporal punishment, house arrest. Loss ability to hold office.
- Victimless crimes.
  - Consentual but illegal sexual acts.
  - Gambling.
  - Recreational drug use/possession.

What can Economics bring to the table?

Economics brings:

1. A theory of behavior.

2. A standard to evaluate laws: *efficiency*.

Theory of Behavior

- Decision-makers react to incentives.
  - Legal sanctions as implicit prices for certain behavior.
  - (Compensated) Law of Demand: $\uparrow$ prices $\Rightarrow \downarrow$ demand.
  - Legal sanctions guide behavior in certain directions.

- This does **not** mean that the threat of sanctions is the **only** thing that affects behavior.
  - Sense of rightness.
  - Customs, etc.

- Agregate reaction. General equilibrium.

Standard: Efficiency

- Is efficiency a valid standard?
  - What about justice? fairness? or morality?
  - Kaplow and Shavell (2001): efficiency should be the only criterion.
  - (Others disagree.)

Pareto Efficiency

- Let $\mathcal{A}$ be the set of all allocations and I the set of agents.
- Each agent $i \in I$ gets an utility $u_i : \mathcal{A} \to R$.

Definition

An allocation $a \in \mathcal{A}$ is *Pareto efficient* if there is no $a' \in \mathcal{A}$ such that

$$\begin{aligned} u_i(a') &\geq u_i(a) \qquad \text{for all } i \in I \\ u_i(a') &> u_i(a) \qquad \text{for some } i \in I \end{aligned}$$

Kaldor-Hicks Efficiency

- We add transfers in a world of quasilinear preferences.
- Let $\mathcal{A}$ be the set of all physical allocations, x the monetary allocation and I the set of agents.
- Each agent $i \in I$ gets an utility $\hat{u}_i(a, x) = u_i(a) + x_i$.

Definition

An allocation $a \in \mathcal{A}$ is *Kaldor-Hicks efficient* if there is no $a' \in \mathcal{A}$ and $x \in R^n$ such that

$$\begin{aligned} u_i(a', x) &\geq u_i(a, 0) \quad \text{for all } i \in I \\ u_i(a', x) &> u_i(a, 0) \quad \text{for some } i \in I \\ \textstyle\sum_{i \in I} x_i &= 0 \end{aligned}$$

Welfare Maximization

Definition

An allocation $a^* \in \mathcal{A}$ *maximizes welfare* iff

$$a^* \in \arg\max_{a \in A} \sum_{i \in I} u_i(a)$$

Claim

a is Kaldor-Hicks efficient $\Leftrightarrow$ a maximizes welfare.

Consensual vs Non-Consensual Exchange

Consent guarantees mutual gains from trade.

- A buyer and a seller. Single object.
- Buyer values the object v, seller values it c.
- **Trade**: the buyer gets the good and pays a price p to the seller.
- There are costs associated with trade k_B and k_S.
- Efficient to trade when the gains $(v - c)$ are larger than the costs $(k_B + k_S)$

Claim: mutual consent to trade implies that trade is efficient.

$$v > p + k_B \qquad \text{and} \qquad p - k_S > c$$

$$v - k_B > p \qquad \text{and} \qquad p > c + k_S$$

By transitivity, $v - k_B > c + k_S$. Rearranging we get $v - c > k_B - k_S$.

Consensual vs Non-Consensual Exchange

Not true: no trade implies trade was inefficiency.

- it could be that it is efficient to trade but parties don't reach an agreement.
- (Although if it is efficient to trade, there must exist a price such that both parties would be better off trading.)

unilateral consent or "robbery":

- If there is a robbery: $v > k_B$.
- This doesn't say much about $v - c$ vs $k_B + k_S$.

Dealing with Externalities

Classical externality example: the rancher and the farmer.

- A rancher lives beside a farmer.
- Cattle wonders off onto the farmer's property and damages the corn plantation.

- Herd size: $x \geq 0$.
- Rancher benefit: $\pi(x)$ str. concave, $\pi(0) = 0$, interior maximum. E.g. $\pi(x) = p \cdot x(10 - x)$.
- Cost to farmer: $c(x)$, convex, $c(0) = c'(0) = 0$. E.g. $c(x) = c \cdot \frac{x^2}{2}$.

Dealing with Externalities

- Socially optimal herd size x^* solves

$$\max_{x \geq 0} \quad \pi(x) - c(x).$$

- x^* characterized by FOC $\pi'(x^*) = c(x^*)$.

- **Independent actions**: rancher ignores the crop damage. Chooses size $\hat{x}$ that solves $\max_{x \geq 0} \pi(x)$.
- This is inefficiently high:

$$\pi'(\hat{x}) = 0 < c'(x^*) = \pi'(x^*) \quad \Rightarrow \quad \hat{x} > x^*$$

- Solutions?

Dealing with Externalities

Solution 1: Prohibition.

- A law is passed that puts a cap on the herd size at x^*.
- Incentives: fine if the law is violated.
- Question: How large should the fine be for efficiency to be achieved?

Dealing with Externalities

Solution 2: Reallocation of property rights.

- Farmer buys the Ranch.
- Rancher buys the Farm.
- Farmer and Rancher form a company that jointly operates the Ranch and the Farm.

- Company goal:

$$\max_{x \geq 0} \quad \pi(x) - c(x)$$

Dealing with Externalities

Solution 3: Pigouvian taxes.

- A constant tax τ is paid per unit.
- Rancher's objective function:

$$\max_{x \geq 0} \quad \pi(x) - \tau \cdot x$$

- What tax rate achieves the efficient allocation?

Dealing with Externalities

Coase Theorem: actually sometimes you don't need any of the previous solutions.

- If the rancher and farmer can negotiate with no transaction costs, they will reach an efficient allocation.
- For example, the farmer pays a certain amount to the rancher to not add animals beyond x^*.

Coase Theorem

Coase "Theorem"

In the absence of transaction costs, bargaining will lead to a Pareto optimal allocation of resources (independently of how rights are initially allocated).

Coase, R. H. (1960). The problem of social cost.

***The Journal of Law and Economics*, III**

Dealing with Externalities

Solution 4: Liability.

- Rancher must compensate the farmer for *all* damages caused by the cattle.
- This is a specific type of liability, injurer is fully responsible independent of his chosen action.
- (There are other forms of liability that we are going to study when we start with Tort Law.)

Fencing Option

- Suppose now that the entire damage from cattle can be eliminated by either:

  a. fencing the farmers land (cost k_F)

  b. fencing the ranch (cost $k_R < k_F$).

- **K-H Efficient**: to fence the ranch and choose size $\hat{x}$ iff

$$\pi(\hat{x}) - k_R \geq \pi(x^*) - c(x^*)$$

- Otherwise not fence and choose size x^*.

Fencing Option

No liability: Rancher not liable for damages.

- Rancher will not want to face the cost of fencing.
- Farmer might prefer to fence his land or
- Even better! Pay the rancher to fence his.
- Efficiency is achieved.

Liability: Rancher liable for all damages.

- Rancher can produce at a lower capacity to reduce costs.
- or even better! Fence the ranch and produce at max.
- Efficiency is achieved again!
- Different wealth.

Coase Theorem in Action

https://www.nytimes.com/2019/07/22/nyregion/manhattan-real-estate-views-air-rights.html

How Much Is a View Worth in Manhattan? Try $11 Million

When a group of loft owners were confronted with a proposed tower that would have blotted out their views, they gave a developer $11 million to not build.

Back to Coase Theorem

- In a Coasian world (no transaction costs), efficiency will be achieved independently of the legal framework.
  - Law only affects the distribution of wealth.

- However, the world is not Coasian.
  - Most interesting economic interactions involve:
    - Transaction costs,
    - coordination issues,
    - information asymmetry.
  - Law changes outcomes and might improve efficiency.

Bonus: Kaplow Shavell (2001)

- Let $\mathcal{A} = R^2$ be a set of allocations, typical element $a = (a_0, a_1)$.
- There are n individuals.
- Preferences given by $U_i(a)$.
- U_i is strictly increasing in a_0 for all i.
- Social preferences represented by $W(a)$ continuous.
- **Question**: should the utility depend on a beyond utilities U_i?

Definition 1

A social preference W is *welfarist* if there exists a function $w : R^n \to R$ such that

$$W(a) = w(U_1(a), U_2(a), ..., U_n(a))$$

(equivalently, for all a, a' such that $U_i(a) = U_i(a')$ for all i, $W(a) = W(a')$.)

Bonus: Kaplow Shavell (2001)

Definition 2

Social preference W *satisfies the (weak) Pareto principle* if $\forall a, a' \in R^2$,

$$U_i(a') > U_i(a) \quad \forall i \quad \Rightarrow \quad W(a') \geq W(a)$$

Theorem (Kaplow-Shavell)

If W is not welfarist then it violates the Pareto principle.

Bonus: Kaplow Shavell (2001)

Proof.

Start with W not welfarist. Then there exists a, a' such that

$$U_i(a) = U_i(a') \qquad \forall i \tag{1}$$

$$W(a) \neq W(a') \tag{2}$$

WLOG, assume $W(a) > W(a')$. Define $a'' = (a'_0 + \epsilon, a'_1)$. By continuity of W, there is an ϵ small enough so that $W(a) > W(a'')$. However, $U_i(a'') > U_i(a)$ for all i. □

Coase, R. H. (1960). The problem of social cost. *The Journal of Law and Economics*, III.

Cooter, R. and Ulen, T. (2016). *Law and Economics*. Berkeley Law Books, 6th edition.

Kaplow, L. and Shavell, S. (2001). Any non-welfarist method of policy assessment violates the pareto principle. *Journal of Political Economy*, 112:249–251.

Kelsen, H. (1997). *Introduction to the Problems of Legal Theory*. Oxford University Press.

Miceli, T. J. (2017). *The Economic Approach to Law*. Stanford University Press, 3rd edition.