Law and Economics
Session 4
The Basic Model of Legal Incentives

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A basic model of legal incentives

- The theme of this course is that with just a few concepts, economics can unify many different legal doctrines.
- In particular, the key insights of property, contracts, torts, and criminal law can be captured in a unified framework.

Property Law Example

- Rancher A, Farmer B, Farmer chooses fence $x \in \{0, 1\}$, payment w.
- Payoffs:

$$u_A = \omega_A + w - ax$$

$$u_B = \omega_B - w + bx$$

- Regime 1 versus Regime 2.
- Costless negotiation between the neighbors.
- When $b > a$, parties ended up having the fence built under both regimes.
- When $a > b$, no fence under either regime.

Contract Law Example

- Seller A, Buyer B, contract specifies quality $\tilde{x}$, payment w
- Payoffs:

$$u_A = w - ax$$

$$u_B = b(x) - w$$

- With expectations damages $z = b(\tilde{x}) - b(x)$ for $x < \tilde{x}$, seller's utility function becomes

$$u_A = w - ax - b(\tilde{x}) + b(x)$$

for $x < \tilde{x}$ and $w - ax$ for $x = \tilde{x}$, giving incentives to set $x = \tilde{x}$.

Tort Law

- Injurer A, Victim B, injurer chooses precaution $x \geq 0$ but probability $1 - p(x)$ of harm to B
- Payoffs:

$$u_A = \omega_A - ax$$

$$u_B = \begin{cases} \omega_B & \text{(no accident)} \\ \omega_B - b & \text{(accident occurs)} \end{cases}$$

$$\mathbb{E}(u_B) = \omega_B - (1 - p(x))b$$

- The tort rule of full compensation for damages to victim results in

$$\mathbb{E}(u_A) = \omega_A - ax - (1 - p(x))$$

which gives efficient precaution incentives.

Criminal Law

- Criminal A, Victim B, criminal chooses crime $x \geq 0$, govt chooses enforcement y, prob. $1 - p(x, y)$ criminal is caught.
- Payoffs:

$$u_A = \begin{cases} ax & \text{(undetected)} \\ ax - b(x) & \text{(detected)} \end{cases}$$

$$\mathbb{E}(u_A) = ax - (1 - p(x, y))b(x)$$

- Chosen crime level $x^*(y)$ solves

$$a = p_x(\cdot)b(\cdot) + p(\cdot)b_x(\cdot)$$

- Social welfare function:

$$W = \omega - y - x^*(y)$$

- Socially optimal enforcement requires

$$1 = -\frac{\partial x^*(y)}{\partial y}$$