

Law And Economics

The Economics of Crime

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Introduction

- Not all crime is *rational*.
 - *Crime of passion*.
- Some crimes respond to clear economic incentives.
 - Embezzlement.
 - Insider trading.
 - Tax evasion.
- Economic approach to crime.

Distinguishing Crimes and Torts

- What distinguishes crimes from torts?
- Both involve (in general) harm to persons or property.
- **Legal action:**
 - Tort: initiated by the victim.
 - Crime: initiated by the state.
 - Why does this difference exist?

Distinguishing Crimes and Torts

- Intention:
 - In general, tort involves accidents.
 - Crime is generally intentional.
 - However:
 - Intent is a continuum.
 - Generally unobservable.
- Why is legal action for crimes initiated by the state?
 - Intentional offenders might try to cover up to avoid responsibility.
 - This makes it difficult for victims with limited resources to carry out the process against offenders.

Distinguishing Crimes and Torts

- Scale economies.
 - High fixed costs \rightarrow natural monopoly.
- Complementarities prosecution- police force.
- Public harm in addition to direct harm.
 - Examples:
 - Fear.
 - Durable goods purchase decision.
 - Private investment in security.
 - Victims might not have sufficient incentives to pursue compensation.

Becker Seminal Article

- **Basic assumption:** in the decision to whether to commit a crime, offenders compare the gain from the act with the expected punishment.
 - These decisions generate a *supply function* of offenses.
- Given the *supply function* of offenses, policymakers determine the optimal punishment scheme.
 - Probability of apprehension.
 - Punishment on conviction (fine or imprisonment).

Becker's Setup

- Setup
 - g : gain from crime. Random variable with cdf G .
 - h : harm to the victim (constant).
 - p : probability of apprehension.
 - f : fine.
 - t : time of imprisonment.
 - c : cost of imprisonment to the offender (per unit of time).

Offender's Decision

- Who commits crime? Only those with

$$g > p(f + g \cdot t)$$

- Total crime:

$$1 - G(p(f + g \cdot t))$$

- Notice that if $G(h) < 1$, there is *efficient crime*.

Optimal Punishment

- Authority chooses: p, f, t .
- Social Welfare Function:
 - Dilemma: should offender's utility be consider in the aggregation?
 - Standard Practice: include offender's benefit.

Optimal Fine ($t = 0$)

- set $t = 0$ and fix p .
- Crime if $g > p \cdot f$.
- social welfare:

$$a \cdot (g - h)$$

- Problem of the offender:

$$\max_a \quad a \cdot (g - p \cdot f)$$

- Harm-based solution: Set expected punishment equal the harm.
 - No need to know anything about the distribution of g .

Gain-based Harm

- Consider the gain-based fine:

$$f = g/p$$

- If when indifferent the agent commits no crime, the fine deters all crimes.

$$\max_{a \in \{0,1\}} a \left(g - p \cdot \frac{g}{p} \right)$$

- Efficient when it is efficient to deter all crime.
- Advantage: when gains of offender are easier to measure than the harm to the victims.
- Example:
 - Insider trading.

Optimal imprisonment

- Prison is costly to the offender, but also to society.
- Thus, it is optimal to use fines up to the maximum wealth of the offender before prison is used.

$$f^* = \begin{cases} h/p & \text{if } h/p < w \\ w & \text{if } h/p \geq w \end{cases}$$

Exercise

- Optimal deterrence requires an expected cost to offenders equal to \$ 4000.
- Probability of detection: 0.5.
- Individual's wealth: \$ 2000.

Optimal Fine with Variable Apprehension Probability

Authority chooses both p and f .

- For any given product $p \times f$, crime is unaffected.
- The authority chooses the combination of p and f that minimizes the cost implementation.
 - Fines are not costly.
 - increasing the probability of apprehension is costly.
- The optimal fine should be as high as possible.
- Limit: wealth of the individual.
- (This is one of the central insights of Becker's analysis.)

Optimal Fine with Variable Apprehension Probability

Which iso-deterrence line is optimal?

- Marginal reduction in net social harm = Marginal increase in enforcement costs.
- Underdeterrence is optimal:
 - Suppose that we initially set $pf = h$.
 - Reducing p slightly one saves in enforcement costs, but some additional crimes are committed.
 - However the loss for those crimes is negligible.
 - Thus there is a social gain from lowering p .

Why Are Fines not Equal to Offenders' Wealth?

- Model tell us that fines should be equal to individual's wealth to:
 - Save on enforcement costs.
 - Avoid use of prison.
- This is not observed in practice. Potential reasons:
 - Fines are not costless to impose.
 - Proportionality.
 - Rich and poor should receive equal treatment.
 - Marginal Deterrence.

Private Protection

- Individuals privately invest in preventing crimes.
 - Locks.
 - Guns.
 - Cameras.
 - Trackers.
- (This relates to the investment in precaution by victims in tort law.)
- There are positive and negative externalities in private crime prevention.

Model with Negative Externalities

- Setup
 - n agents, each of whom owns an item of value v .
 - Agents can invest or not in a precaution technology (lock). Cost c .
 - Thief steals one item from the set that has no lock. (If all items have locks, the criminal does not steal.) For simplicity, assume value zero for the thief.
- Efficient Allocation:
 - Makes no sense to put a lock in less than all items.
 - Put a lock in all items if $v > nc$.

Model with Negative Externalities

- Best response:
 - Suppose that $k/n - 1$ other agents have a lock.
 - Best response to get lock if:

$$c < v/(n - k)$$

- If $c < v < nc$, at least two equilibria:
 - Efficient: no one gets the lock.
 - Inefficient: everyone gets a lock.

Model of Plea Bargaining

- θ : type of the defendant. G for guilty and I for innocent.
- P_θ : Probability of conviction. $P_G > P_I$.
- S : sanction.
- C_d : defendant's cost of trial.

Plea Bargaining

- Expected cost of trial is lower for innocent agents:

$$P_G S + C_d > P_I S + C_d$$

- Prosecutor offers a plea S_0 . She can try to:
 - a. Go to trial with both types.
 - b. Make a plea offer S_0 such that only the guilty will accept.
 - c. Make a plea offer that both types will accept.

Plea Bargaining

- Claim: (a) is never socially optimal.
 - The prosecutor can impose the same cost on guilty defendants by offering $S_0 = P_G S + C_d$.
- (b) imposes higher cost on guilty defendants.
- (c) involves lower cost on innocent defendants. Saves the cost of trial of innocent defendants.

Plea Bargaining

- Notice that in (b) all defendants that go to trial are innocent!
 - This might affect how judge or jury read the evidence against the defendant.
 - If this affects the probability of conviction, the plea might not work as desired.