Introduction to Law and Economics

Kong-Ping Chen

What is Law and Economics About?

- Economic theories and econometric techniques provide tools for analyzing law.
- Thus providing behavioral theories of how people react to laws, and to changes in laws.
- Providing economic rationale for certain laws, enabling the evaluation of current state of laws, and the consequences of legal changes.

Basic Methodology

- Cost and Benefit Analysis
  1. Legal actors are assumed to be rational.
  2. When making (esp. legal) decisions, they weigh the cost and benefit of their decisions.
  3. Legal rules are like transaction rules, and sanctions are like prices.
  4. Legal actors, who react to legal rules and sanctions, are like consumers and producers who react to transaction rules and price.

Basic Methodology

- Cost and Benefit Analysis (cont.)
  5. Example on illegal parking:
     Suppose
     Individual benefit of illegal parking: b
     Fine of illegal parking: f
     Probability of receiving ticket for illegal parking: p
     How to prevent risk-neutral individuals from illegal parking?
     Values of p and f must be such that
     (expected) cost $>$ benefit:

     $$pf > b$$

  6. Note that, under this calculation, drivers who consider whether to illegally park is not an ethical problem, but the balance of cost and benefit.

Basic Methodology

- Efficiency as the most important criterion
  1. Pareto-efficiency is the criterion by which
     (i) Comparison between rules is made.
     (ii) Design of rules or institutions is aimed.
  2. Legal actors are assumed to work towards efficiency.
  3. Caution: Pareto-efficiency is not a "complete ordering", so that concern of distribution almost always arises.
  4. Social welfare is usually taken to be the sum of benefits all of numbers in society.
  5. A policy is efficient (or Pareto-optimal) if it maximizes social welfare.

Basic Methodology

- Efficiency as the most Important Criterion
  6. Example on illegal parking (cont.)
     Social cost of illegal parking: c.
     Cost of enforcement : $e = 2p$.
     A regulation (policy) is essentially a design of values of (p, f).
     For simplicity, assume the fine, f, is fixed, and that $b < f$.
     What is the Pareto-optimum level of enforcement?

Basic Methodology

- The Notion of Fairness is Seldom Discussed
  1. Essentially about distribution.
  2. Economists can't agree on a measure of "fairness".
  3. Does not mean fairness is unimportant.

Efficiency and Pareto Optimum

- In economics, we usually compare policies by their comparative efficiency.
- A policy or allocation of resource, A, is more efficient than another B if everybody involved under A has at least as great a profit or utility as under B.
- A policy or allocation is called a Pareto-optimum if nobody's benefit can be improved by decreasing that of at least one of the others.
- Example: Suppose there are two consumers, A and B, and two goods, x and y. Originally, consumer A has 2 units of x and consumer B has 1 unit of y. The utility tables are as follows.

Efficiency and Pareto Optimum

		y = 0	y = 1
x	0	0	1
	1	2	4
	2	3	6

$u_A(x, y)$

		y = 0	y = 1
x	0	0	2
	1	3	4
	2	4	5

$u_B(x, y)$

- Originally, the utility of consumer 1 is 3, and that of consumer 2 is 2. This allocation, however, is not efficient.
- Consumer A can exchange 1 unit of x with 1 unit of y from consumer B. In that case his utility increases from 3 to 4, and consumer 2's utility increases from 2 to 3.

Efficiency and Pareto Optimum

- What are the Pareto-optimum allocations?
- $\big((0,0),(2,1)\big)$, which yields utility (0, 5)
  $\big((1,0),(1,1)\big)$, which yields utility (2, 4)
  $\big((1,1),(1,0)\big)$, which yields utility (4, 3)
  $\big((2,1),(0,0)\big)$, which yields utility (6, 0)
- The following are not Pareto-optimum allocations:
  $\big((2,0),(0,1)\big)$, which yields utility (3, 2)
  $\big((0,1),(2,0)\big)$, which yields utility (1, 4)
- The conflict of efficiency and fairness is clear: there can be Pareto-optimum that is very "unfair", e.g., $\big((0,0),(2,1)\big)$ and $\big((2,1),(0,0)\big)$.

Potential Conflict Between Efficiency and Fairness

- Suppose \$100 is to be distributed between two persons, A and B.
- What are the Pareto-optimum (PO) distributions?
- Let X_A and X_B be the amounts received by A and B, respectively.
- Then all distributions (X_A, X_B) such that $0 \leq X_A, X_B \leq 100$ and $X_A + X_B = 100$ are PO.
- In particular, (100, 0) and (0, 100) are PO. But they are extremely "unfair".

Social Welfare: A Simplify Assumption

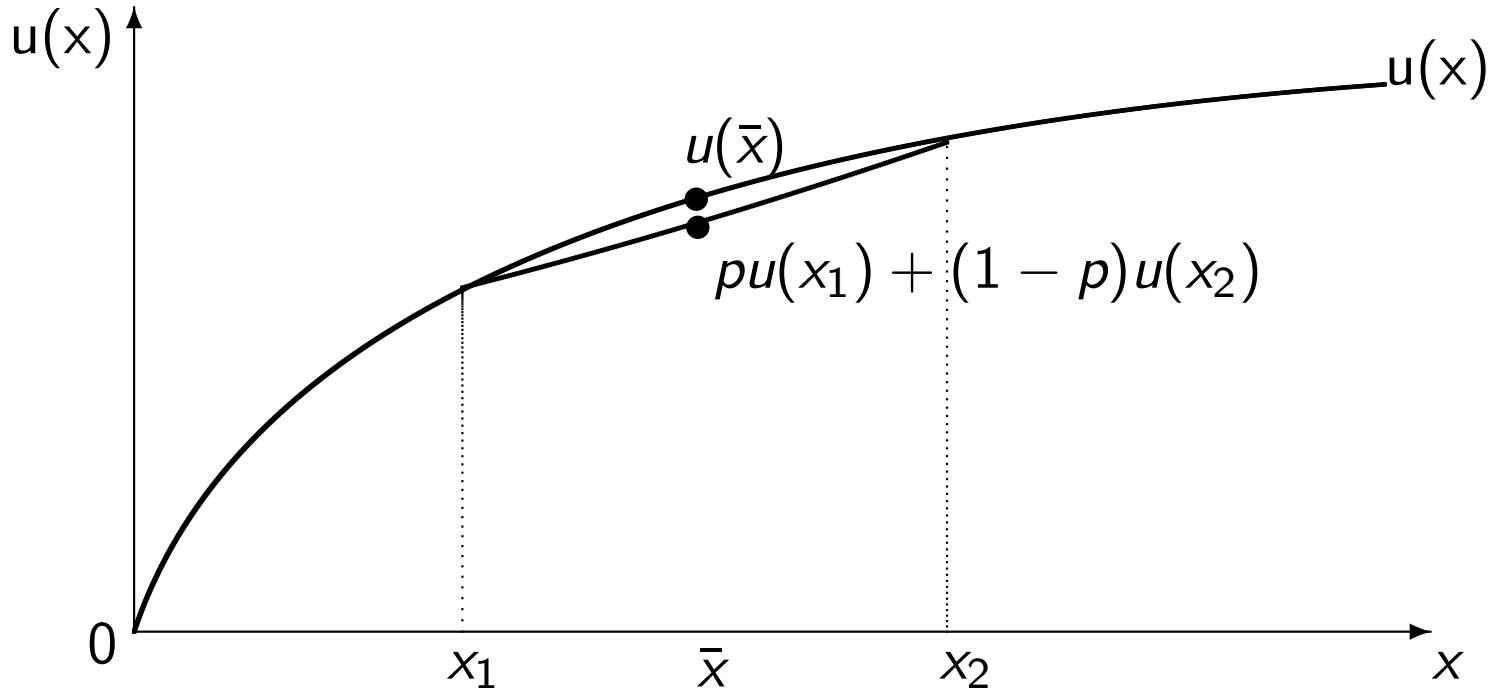
- In law and economics, we usually make an extreme assumption in measuring social welfare, by assuming it as the *sum* of all individual's utilities.
- This assumption is a special form of utilitarianism, actually views a dollar's worth identical for everybody in the society.
- This greatly simplifies the our reasoning, as can be seen for the rest of our course, but you must be cautioned of this assumption.

Notes on Risk Aversion

- Notations:
  1. x : income, wealth, amount of certain good.
  2. $u(.)$: utility function, a measure of how "happy" a person is, when he has certain amount of income or wealth, or commodity.
  3. In economic terminology, $u(x)$ is the measure of how much "utility" a person derives from having wealth/income x.
  4. $u(x)$ is increasing in x for obvious reason.
  5. We, however, are concerned with the "shape" of u.

Notes on Risk Aversion

- The person is called risk averse if $u''(x) < 0$ or, equivalently, $u(x)$ is a concave function.



Notes on Risk Aversion

- Example: suppose he faces a lottery, in which he gains x_1 (x_2) with probability p $(1-p)$, with $x_1 > x_2$
- The expected value the lottery gives him is thus

$$px_1 + (1-p)x_2 \equiv \bar{x}$$

- The expected utility he obtains from the lottery is $pu(x_1) + (1-p)u(x_2)$

Notes on Risk Aversion

- If he is given the expected value of the lotter, $\bar{x}$, for sure, then his utility $u(\bar{x})$.
- A person is risk averse if he prefers receiving $\bar{x}$ for sure than the lottery itself:

$$u(\bar{x}) > pu(x_1) + (1-p)u(x_2).$$

- On the other hand; if

$$u(\bar{x}) = pu(x_1) + (1-p)u(x_2),$$

the person is said to be risk neutral.

Notes on Risk Aversion

- If a person is risk neutral, then his utility function is essentially linear.