Module 3

Lecture 24

Topics

3.9 Coase Theorem

3.9.1 Coase's Contribution

3.9 Coase Theorem

> ➢ Market failure arises when social optimum differs from the market equilibrium. This typically happens in the presence of externality,
> ➢ Solution: Tax/Subsidy, to shift private benefit or cost curve.
> ➢ Ronald Coase (1960) challenged this view.
> ➢ He reconsidered Pigou's case of railroad, where spark generated by rail engines would cause damage to the farmers. Pigou said on efficiency ground holding railroad liable for the damage can solve the problem. .
> ➢ Coase responded saying that as long as there are no costs of bargaining between farmers and railroad it doesn't matter who is responsible.

If value of crop > cost of checking/preventing the spark, those harmed will simply pay the railroad a sufficiently large sum to induce them to agree to prevent the sparks.

Coase Theorem is a dramatic extension of fundamental theorems. It says that even where markets are incomplete and hence non market interactions occur, efficient allocations can be achieved as long as those affected are able to bargain efficiently over the rights governing the actions. This gives rise to the non-market interactions.

Example:

A and B are two neighbors.

B is a night-owl --- she plays loud music in the night

A is a morning person --- she does suryapranam.

A curfew is proposed. Specifying the time of night, x, after which no music is played.

If A could decide x then x = a.

If B could decide x then x = b. while b>a

Coase theorem says that it does not matter for efficiency whether A sets standard, B sets standard or some third party as long as the two can efficiently bargain to rearrange the relevant property rights.

Suppose the bargaining takes the form of a payment from B to A of an amount of y in return for A agreeing to a later curfew than what is initially announced. Let the utility functions of A and B respectively are

$$u = y - \alpha(a - x)^2$$

$$v = -y - \beta(b - x)^2$$

let $\alpha + \beta = 1$

Suppose there is a Mayor in the town who wants to choose curfew hour x to maximize total social utility. So the Mayor's problem is

Max$W = u + v$

Difference W w.r.t. x and setting the first order conditions equal to zero to get.

$$x^* = \alpha a + \beta b$$

if $\alpha = \beta$ →the optimal curfew hour is exactly two midpoint between the two preferred curfew time.

Would private bargaining achieve the same result?

Suppose there is no curfew at all. B will play loud music till b' o clock in the night and impose it on A. To see whether a bargaining solution can be struck, let us consider the following diagram. The time of curfew is on the horizontal axis and the payment from B to A measured vertically.

u and v are combinations of curfew times and payments which are as good as their preferred time with no payment.

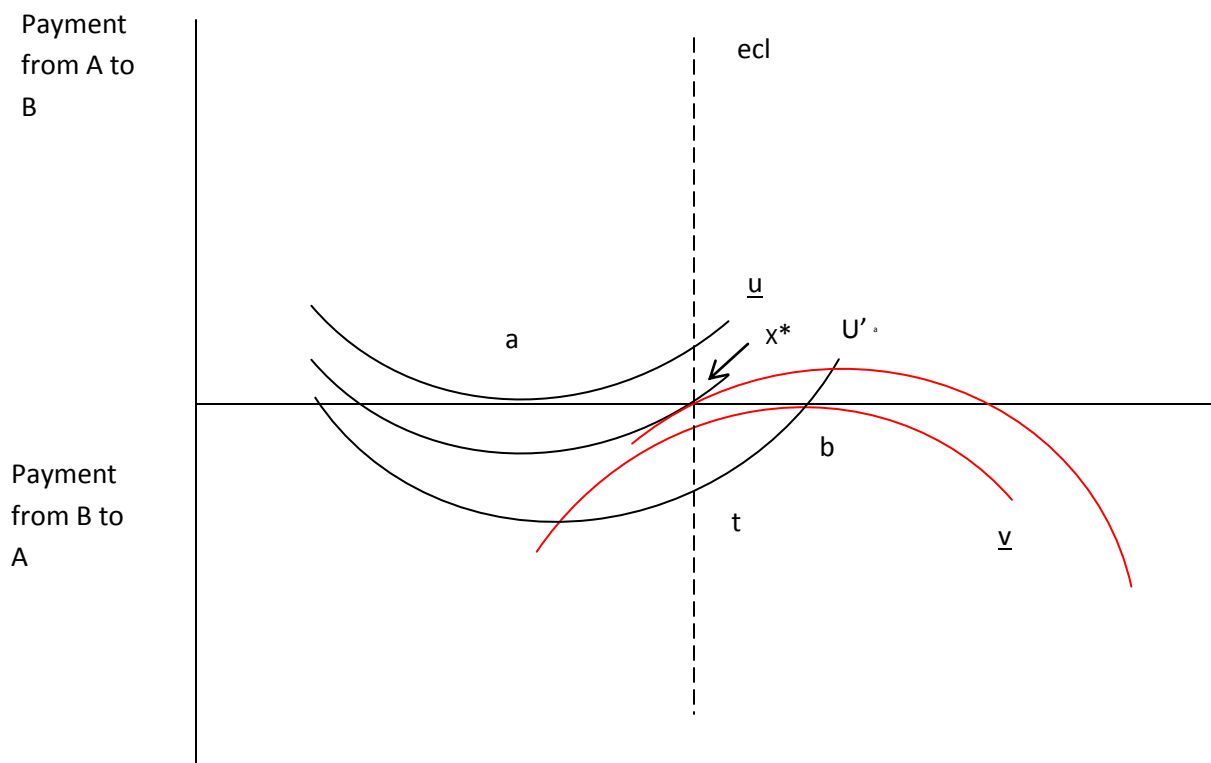Payment from A to B

Payment from B to A

Figure 1:

The above social optimum occurs midway between a and b at a point on the horizontal axis at which two indifference loci are tangent. The value of x at that point is x*. The condition for getting such optimum under the private order set up is given by

$$2\alpha(x - a) = 2\beta(b - x)$$

Because the marginal utility of income is constant for both, the indifference loci are simply vertical displacements of one another. This can be verified by the fact that y does not appear in the expression of slope for indifference curve. Therefore the locus of such points where the indifference curves are tangent are found along a vertical line given y ecl

If B plays his preferred time (i.e. b 'o clock) then A gets U'.

Hence some payment from B to A implies a movement towards x^* and it makes both better off.

If B can make a take it or leave it offer then the outcome will be t.

If outcome is determined by an arbitrator, subscribing to the Nash bargaining solutions----it will be somewhere around.

If the institutions and norms governing the bargaining process allow efficient bargains the outcome will be Pareto efficient-> equivalently along the efficient extract locus within the Pareto improving them.

- Coase was right to point out that who holds the property right does not matter.
- However, if A is not wealthy and cannot borrow, this equation cannot be reached through private bargaining. Because then A may not have enough fund to compensate B.

3.9.1 Coase's Contribution

Coase theorem appeared to radically enlarge the class of situations in which decentralized allocation mechanism can solve. Allocation problem -> it limits the appropriate scope of state interaction provided, costs of organizing.

However all Coase Theorem (CT) says is that if there are no impediments to efficient bargaining then outcomes will be efficient. But then it delivers something similar to FT's. Farell points out the command for CT ->(no impediments to efficient bargaining) - are exactly those which allow complete contracting.

- Does it mean that CT is of little relevance?

CT specifies conditions under which private rearrangement of property can solve coordination problem. When neither state nor market can.

1. In a way it is same as F.T. -> neither supports/oppose it clarifies what is required for the results to be pareto efficient.
2. The policy package resulting from Coase Theorem includes rearrangements of initial right by private -> complementary to centrist property right or Pigou Marshall approach.
3. Underlines the value of distinguish between efficiency arguments and distributive justice.