Chapter 6 – **Utopian Capitalism: decentralized coordination**

Difference between allocative problem (public use of private land) and distributional problem (who pays for it).

Two general decentralised allocation mechanisms:
① competitive markets
② private bargaining
Both are
⇨ privacy preserving (based on individual preferences and constraints)
⇨ polyarchal (no individual is decisive)

The concern is: when do decentralised allocation mechanisms implement a Pareto optimum ?

This is important for two reasons:
⇨ most of the economic thinking has to do with to the answer to this question
⇨ most economists do not treat this as limiting case but as actual description of how does the actual economy work.

"It is important to know not only whether it *is* true but whether it *could be* true." (Arrow and Hahn).

FIRST THEOREM OF WELFARE ECONOMICS

Suppose two individuals, *lower* and *UPPER*. There is a unitary endowment of two goods, x and y, with $x + X = y + Y = 1$.

Preferences reflect self-interest

$$u = u(x, y)$$
$$U = U(X, Y)$$

a) *lower* chooses the allocation conditional on granting a sufficient level of utility for *Upper*. This implies the reciprocal knowledge of utility functions. She solves the following problem

$$\max_{x,y} u(x, y) \qquad \textit{subject to} \quad U(1 - x, 1 - y) > \overline{U}$$

The resulting allocation satisfies

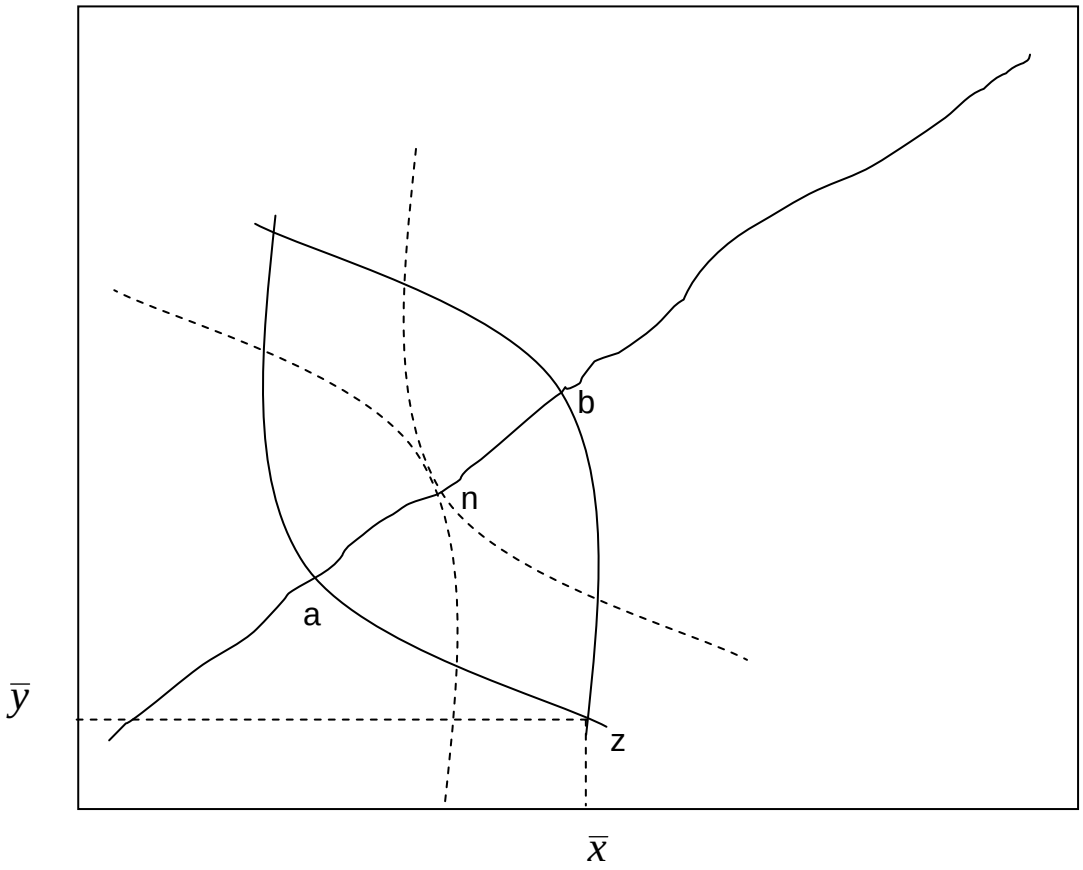
$$\frac{u_x}{u_y} = \frac{U_X}{U_Y}$$

i.e. the marginal rates of substitution are equalised → *efficient contract locus*.

b) a benevolent social planner identifies an optimal allocation satisfying similar requirements. She solves the following problem

$$\max_{x,y} F[u(x, y) + U(1 - x, 1 - y)]$$

c) a decentralised price system can achieve similar results, as described in the Edgeworth box. Each participant is assumed to have an initial positive endowment, whose distribution is exogenously given.



The square describes the total amount of resources available. $\bar{x} = 1 - \bar{X}$ and $\bar{y} = 1 - \bar{Y}$ are initial endowments. In point z we observe that $\frac{u_x}{u_y} < \frac{U_X}{U_Y}$, thus it is convenient for *lower* to give up some x in exchange of some y, and the reverse applies for *UPPER*. The process continues until we reach the contract curve, somewhere between a and b.

The lens is both feasible and represents a Pareto improvement over the initial distribution. Which institutional arrangement may drive to the contract curve?

3.1) *UPPER* has the power to make a take-it-or-leave-it offer → she will propose point a, where *lower* is indifferent.

3.2) *UPPER* computes the best response function to any price offer, and maximises her utility conditional on this best response function → they end up out of the contract curve.

3.3) without requiring the knowledge of the opponent preferences, they may engage in mutual trade. One example of this procedure is the Walrasian exchange satisfying
⇨ pure competition (law of single price)
⇨ price taking (parametric prices)
⇨ exchanges take place only at equilibrium prices (no disequilibrium trade).
Typical definition of pure competition does not include these assumptions.

The fictitious auctioneer is one story introduced to explain the attainment of equilibrium prices, which correspond to Pareto outcomes

$$\frac{u_x}{u_y} = \frac{p_x}{p_y} = \frac{U_X}{U_Y}$$

Even if we introduce production, the walrasian auctioneer will grant the attainment of the following outcome

$$\frac{u_x}{u_y} = \frac{U_X}{U_Y} = \frac{p_x}{p_y} = \frac{c_x}{c_y} = \frac{C_X}{C_Y}$$

where the marginal rate of substitution equates the marginal rate of transformation for each participant to the market. Without either party knowing anything about the other' preferences, price implement a Pareto optimal allocation.

First (or Fundamental) Theorem of Welfare Economics: *if the exchange of goods and services is subject to complete contracts (market completeness assumption), all equilibria supported by competitive exchanges are Pareto optimal.*

This theorem is silent about the distribution of gains from mutual exchanges. Here is where the Second Theorem of Welfare Economics gets in:
given the convexity of preferences and production technologies, and given market completedness, any Pareto-optimal allocation can be supported as a competitive equilibrium for some assignment of individual endowments.
Thus wealth redistribution + competitive exchange represents a mechanism capable of implementing *any feasible* Pareto optimum. The working of the market exchange is free of ethical concerns.

Critique to the general competitive equilibrium.

① there is nothing equivalent to the auctioneer in the actual world. The auctioneer obviates the need for a theory of market dynamics. Who sets the price once everyone is irrelevant for the market outcome ?

② for the equilibrium to be a relevant concept, it must be globally stable. But in order to achieve global stability, market excess demand functions must exhibit gross substitutability, which is rather implausible. Out of equilibrium behaviours does not grant initial redistribution leading to a Pareto equilibrium.

③ equilibria are not unique unless more restrictive assumptions are invoked. "In a system with many equilibria, the determination of outcomes requires information from outside of the Walrasian model, namely, an explicit analysis of the out-of-equilibrium dynamics as well as knowledge of the recent history of the system".

④ market completeness is false: not everything exchanged in social interaction is covered by complete contracts (example: labour contracts, credit contracts).

When even one of these condition is violated, we enter the Second Best World, where equilibria can be Pareto-ranked and further violations may improve on social welfare (example: pollution and monopoly).

Tentative solutions to the problem of price dynamics indicate that trading at disequilibrium prices makes it impossible to associate initial endowments to any particular equilibrium outcome.

In addition, identical agents with identical endowment end up with unequal bundles of final consumption. The surplus from the trade is not necessarily split evenly among agents

THE COASE THEOREM

If bargaining is costless, the allocation of property rights is irrelevant and efficiency can still be achieved:
even where markets are incomplete and hence nonmarket interactions occur, efficient allocaitons will be made as long as those affected are able to bargain efficiently over the rights governing the actions giving rise to the nonmarket interactions.

Example: noise pollution.
A prefers silence starting from a, while B prefers silence after $b > a$. They must find an agreement on the curfew timing x such that $a \leq x \leq b$.

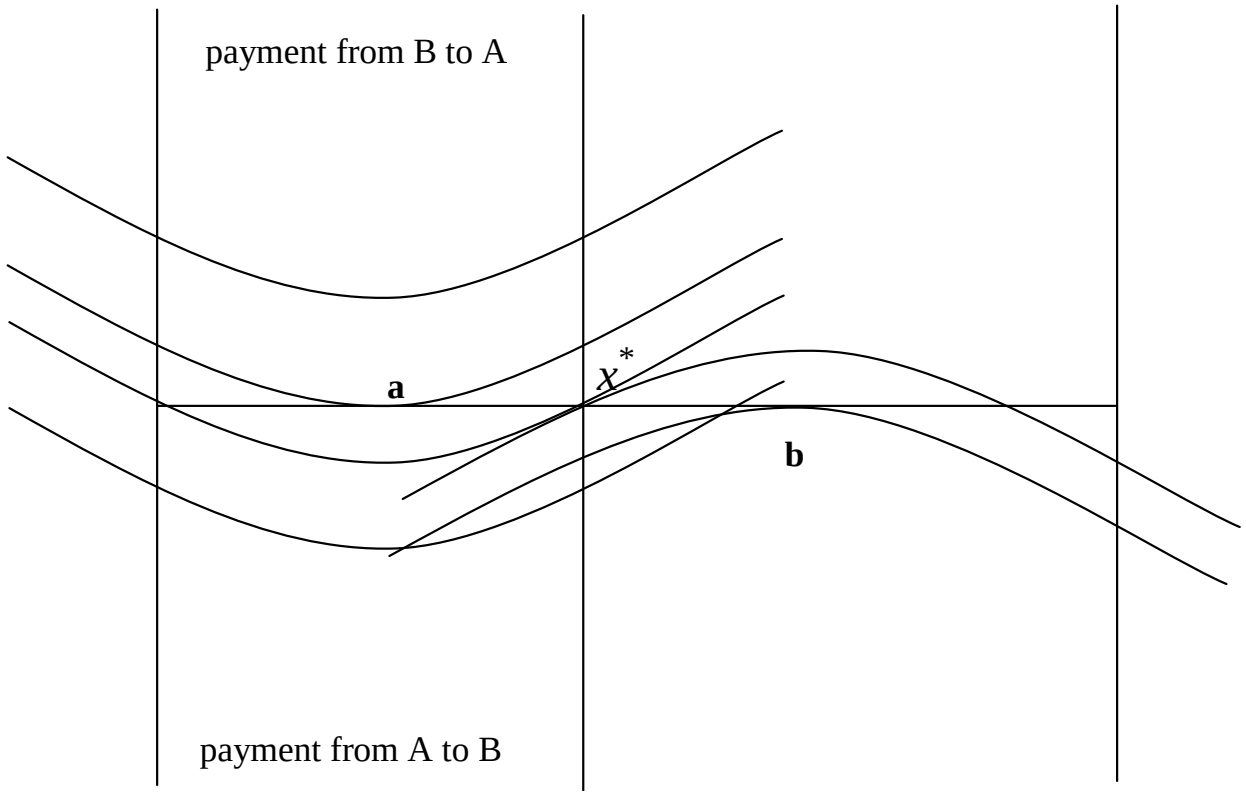
The Coase theorem says that for efficiency (i.e. for achieving the contract curve) it is not important who has the right to set x. In fact, suppose y is a payment from B to A in order to raise x (or alternatively $-y$ is a payment from A to B in order to lower x).

Their preferences are described by

$$u_A = y - \alpha(a - x)^2$$
$$u_B = -y - \beta(b - x)^2$$

If the mayor of the town is to maximise social welfare $W = u_A + u_B$ she will set $x^* = \alpha a + \beta b$. This corresponds to the point where the marginal disutility of an additional minute of noise for A [corresponding to $2\alpha(x - a)$] is exactly matched by a marginal benefit for B [corresponding to $2\beta(b - x)$].

But this is equivalent to claiming that the two indifference curves are tangent (given the contant marginal utility of income)



Both in a or in b there is an incentive to bargain, since the marginal benefit to go towards x^* exceeds the marginal cost. The point where they will end depends on the institutional rules governing the interaction(for example, whether B can make a take-it-or-leave-it offer).

But we know that if the bargaining is efficient (=costless and without liquidity constraints) they will end up on the contract curve ("question of equity aside").

Pareto efficiency may diverge from social efficiency (namely the x^* set by fiat of the mayor).

Critique: the information conditions required for the Coase theorem to hold – no impediments to efficient contracting – are identical to the Fundamental theorem. However it suggests the bargaining is a viable alternative to walrasian market exchanges.