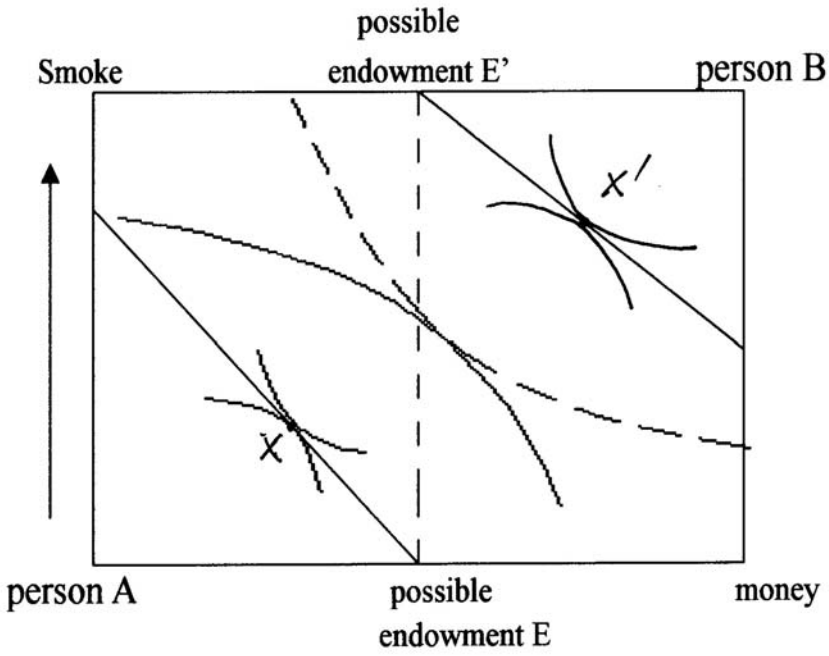
A Discussion of the Coase Theorem

Coase Theorem

Weak version: Regardless of the specific initial assignment of property rights in market equilibrium the final outcome will be Pareto optimal – provided that the initial legal assignment is well defined and that transactions involving exchange of rights are costless.

e.g. Varian's example of the smoker versus the non-smoker, which we have discussed:



The market will reach Pareto optimality through voluntary trading between A and B given the property rights assignment and there is no need for external intervention.

Strong version (invariance hypothesis): The final optimal outcome will be independent of the specific assignment of property rights.

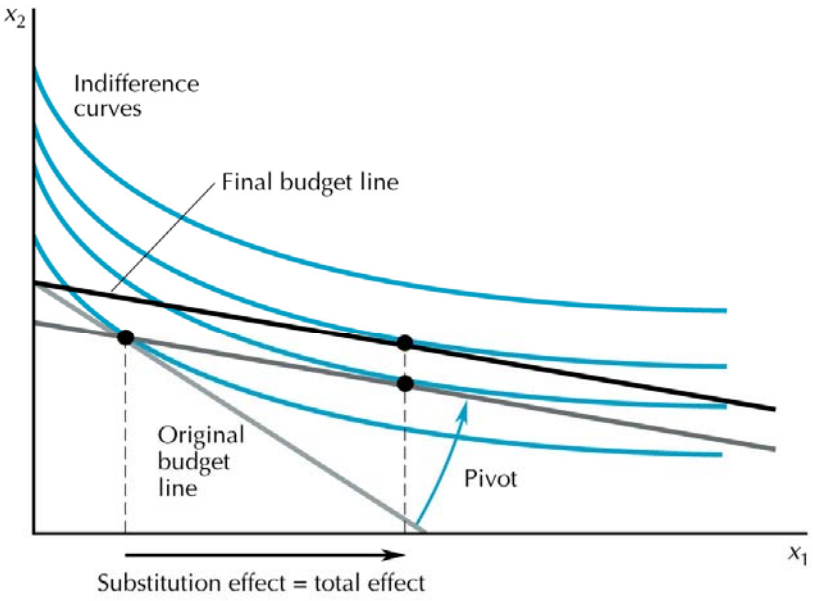
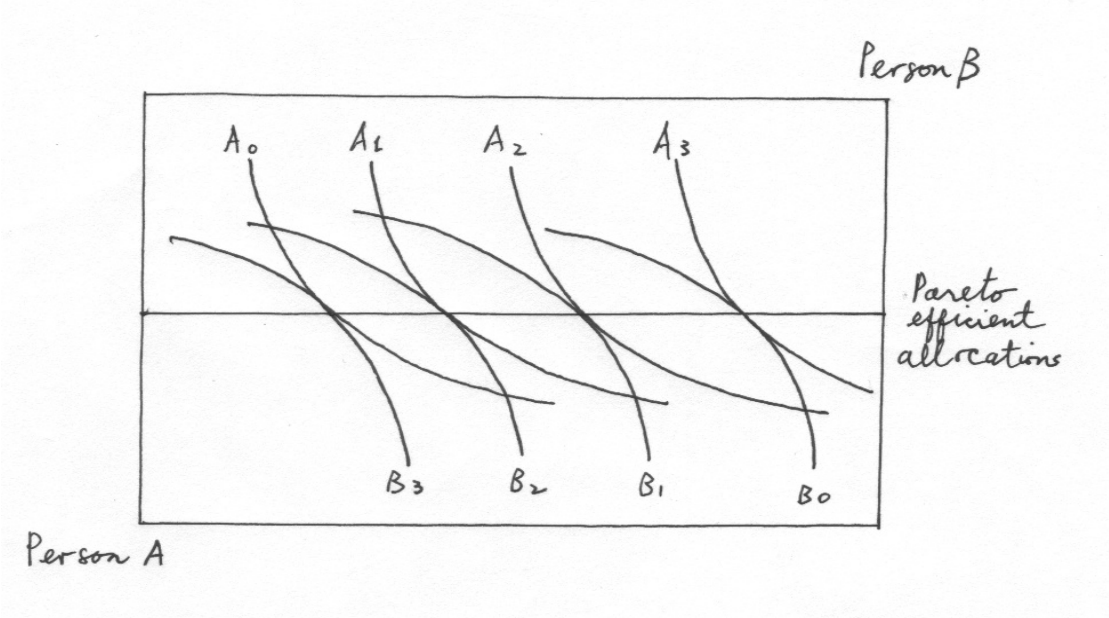


FIGURE 8.6 Quasilinear preferences

(See Varian: this is true only if people's preferences are quasilinear in his Figure 33.2.)

Smoke



money

If each consumer's preferences are quasilinear, so that they are all horizontal translates of each other, the set of Pareto efficient allocations will constitute a horizontal line, i.e. the amount of the externality (smoke) will be unique; and the assignment of the legal rights to either A or B will not affect the result.

Discussion

For a favourable discussion of the theorem, see Hirshleifer's section on it. My only observation is that Cheung's 'discovery' of market activity taking place in the case of the apple and the bees does not prove Pareto optimality or lead to any firm conclusion about the comparative merits of government intervention (e.g. taxation) versus the market solution.

To criticize the Coase Theorem is easy. Several criticisms are always expressed:

(i) It may be impossible to assign property rights; e.g. the assignment of water rights in Example 15.5 of Hirshleifer.

(ii) Transaction costs may be very high.

(iii) Strategic behaviour in negotiation, particularly when a large number of parties is involved etc.

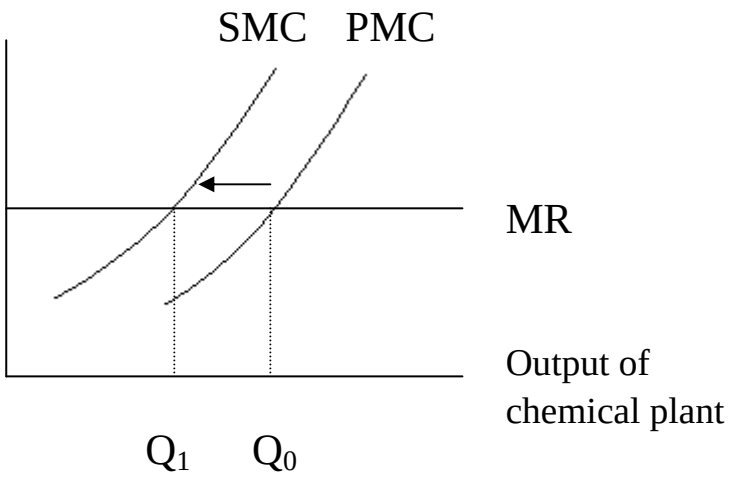
In any case, the weak version of the Coase Theorem is becoming increasingly accepted as of merit. As far as property rights can be defined, the optimal amount of externalities-causing goods may be determined through the market mechanism, i.e. trading----pollution is an example.

On the other hand, the strong version seems to depend on peculiar sets of preferences, which may not obtain in many cases.

Mishan's Critique of the Strong Version

A more subtle criticism is raised by Mishan in his The Cost of Economic Growth, pp. 91-93.

Note that the strong version of the Coase theorem implies the output invariance proposition, e.g. in the case of the chemical plant and the fishermen. No matter whether the chemical plant is assigned the property right of the river (so that the fishermen have to pay the chemical plant not to pollute) or the fishermen have it so that the plant has to pay them to pollute, the outcome is the same: the output of the chemical plant will be reduced to the socially optimal level, which must also be Pareto-optimal.

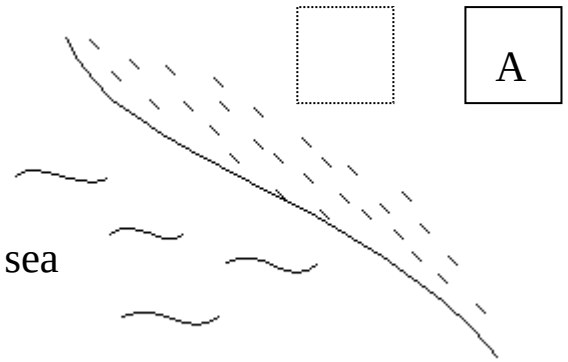


SMC: social marginal cost
PMC: private marginal cost

Q_1 is the Pareto-optimal output level. As can be seen in the above diagram: it is unique → so output in invariant to the assignment of property rights.

Mishan does not agree with such a proposition. He points out that the **output level is likely to be affected by distribution, which influences preferences of different parties.** The results could vary under different situations.

e.g.



A house, A , is already in existence and owned by A; now B intends to build a house on the site in front of A, thus blocking its view. Now the outcome – where a house will be built on the site depends on distribution and hence preferences – and is not invariant and the distribution of utility improvement is also not invariant.

I. B has the property right to the site

(i) A is rich: willing to pay $2,000 to persuade B not to build on the site.
B is poor: willing to accept $500 for not building on the site.
They do not know each other's preferences.

Outcome: B accepts $600 from A and no house is built. In terms of utility, B gains $100, but A gains $1,400 → still Pareto-improvement!

(ii) A is poor: willing to pay $1,000 to B not to build
B is rich: willing to accept $2,000 for not building

Outcome: B proceeds to build the house!

II A has the property right

(i) A is rich: willing to accept $2,000 from B to have the house built

(ii) B is poor: willing to pay A $500 to build the house

Outcome: no house is built but then A gains $2,000! B in fact loses $500 (compared with the situation of externalities, i.e. the house is built)

A comparison between I(i) and II(i) should be made.

We can argue that even if the output is invariant, distribution is variant.

Mishan's example on p.93 is more interesting.

Matrix of reservation prices:

A	B
1. prepared to pay a max. of £1,000 to B not to build on the site	1. willing to pay a max. of £1,100 to build on the site
2. willing to accept a min. of £1,200 to let B to build	2. prepared to accept a min. of £1,300 for not building on the site

The numbers can be justified on grounds of diminishing marginal utility $U^{A}_{+\$1,200} = \left|U^{A}_{-\$1,000}\right|$: an addition of the same amount of money to a man's income yields a smaller degree of utility than a subtraction of the same amount would remove from his utility.

Now, given A(1, 2) and B(1, 2), the assignment of the property right to the site would matter, and the outcome will not be invariant.

If **A has the property right**, no house will be built because A2 > B1.

If **B has the property right**, a house will be built by B on the site because A1 < B2.

So the output invariance proposition is shown to be invalid by a counter example.

(To refute a theory, several approaches can be adopted:

1. To prove that the theory is wrong in general.
2. To show that there are problems in the argument process: e.g. inconsistency between assumptions and derivation of propositions.
3. To find a counter-example, hence undermining the general relevance of the theory.

Mishan's "critique" of the strong version of the Coase Theorem belongs to approach 3.)

Distribution ⇒ Preferences ⇒ Outcome: is this always true?