

Environmental Economics

Fourth Canadian Edition

Field • Olewiler

Chapter 10

Liability Laws, Property
Rights, Moral Suasion,
Green Goods

For ECON 260 at SFU only

Learning Objectives

- LO1 Explain how liability laws can reduce pollution and lead to a socially efficient equilibrium.
- LO2 Explain and show graphically how private property rights and bargaining between parties can lead to a socially efficient equilibrium and how the gains to each party differ depending on the starting point and who has the property rights.
- LO3 Describe the Coase Theorem and why it is important for environmental policy.
- LO4 Describe the factors that inhibit private bargaining from reaching a socially efficient equilibrium.
- LO5 Explain how recycling and green goods can reduce pollution and illustrate graphically the potential impacts.

Liability Laws

- In theory liability laws lead to the socially efficient level of pollution because they provide an incentive for polluters to reduce emissions so as to minimize their total costs.
- For example: A Chemical factory discharges waste products into a river. These wastes kill many salmon that are swimming upstream to spawn. Suppose first that there is no liability law that holds polluters responsible for the damages they inflict. If the factory is not required to compensate, MAC will be \$0. If the government invokes a liability law that requires the factory to compensate people who have been damage by their pollution, they will reduce their discharge to avoid paying damages. This allows the socially efficient level of pollution to be reached.

Liability Laws in Practice

In practice, transactions costs can be high preventing the socially efficient level of pollution from being reached.

- Burden of proof requires injured parties to show:
 - That the polluting material was a direct cause of their damage, and
 - That the material did in fact come from the specific defendant that appears in court.
- Enforcement costs include:
 - Costs of searching out information
 - Costs of bargaining over terms
 - Costs of making sure an agreement is actually carried out.

Property Rights

Recognizes that all pollution problems involve costs to both sides:

- The side that is harmed by pollution and,
- The side that must pay to abate pollution

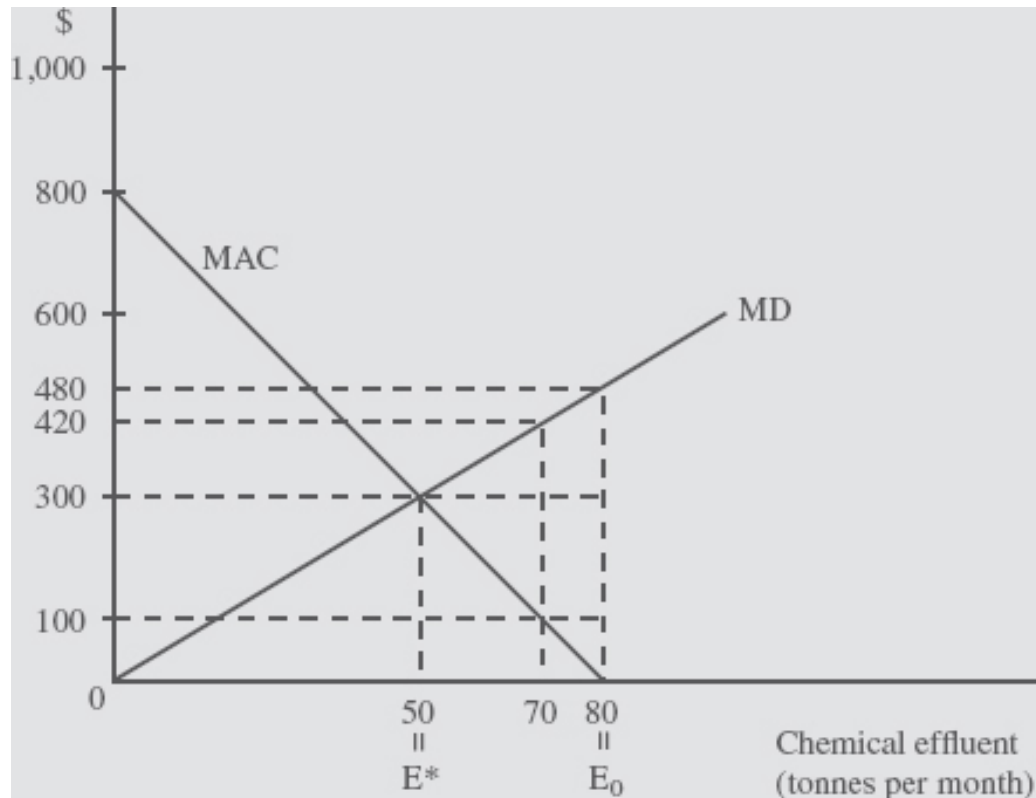
Who has the right to pollute the river and who is the damaged party?

Will assignment of rights to either party yield a socially efficient equilibrium?

These questions can be answered graphically using the chemical factory and fishery example.

Property Rights

- FIGURE 10-2 Assignment of Property Rights Leads to Social Efficiency Regardless of Who Has the Property Rights.



The Polluter Holds Property Rights

Figure 10-2: If the chemical factory has the property right to use the river, it will not abate any of its effluent. Eighty tonnes per month is the starting point. To reduce chemical effluent into the river, the fishery will bargain with the chemical plant and offer a payment to the plant. Two payments are shown: \$100 and \$300 per tonne of effluent reduced. The socially efficient equilibrium at 50 tonnes per month can be reached after bargaining. If the fishery has the property rights, the starting point is zero emissions and the socially efficient equilibrium can also be reached from this property-right assignment.

The Pollutee Holds Property Rights

- If the property right to the river belongs to the fishery the starting point will presumably be clean water; that is, zero emissions from the chemical factory. If the chemical factory wants to release any amount of effluent, it will have to bargain with and compensate the fishery.
- The fishery will allow emissions as long as the payment at least covers their marginal damages. This allows the socially efficient level of pollution to be reached.

Property Rights

- Bargaining between the two parties allows each to benefit by either receiving payment for damages or reducing their marginal abatement cost.
- We see that while the same equilibrium output of pollution can be obtained with either party holding the secure property right to the river.

Coase Theorem

- Net social gains are dependent on who has the property rights to environmental resources.
- The key is to clearly define property rights
 - Does the polluter have the right to pollute
 - Or does the public have the right to a pristine environment?
- This can allow for the socially efficient level of pollution to be reached, regardless of the starting point.

Application of Property Rights

- Should result in the efficient level of pollution but like Liability Laws, real world application introduces inefficiencies.
- A property right must be clearly identifiable, known to parties, and enforceable.
- It can suffer from transactions costs.
 - The more people involved, the more difficult it is to negotiate a solution.

Application of Property Rights

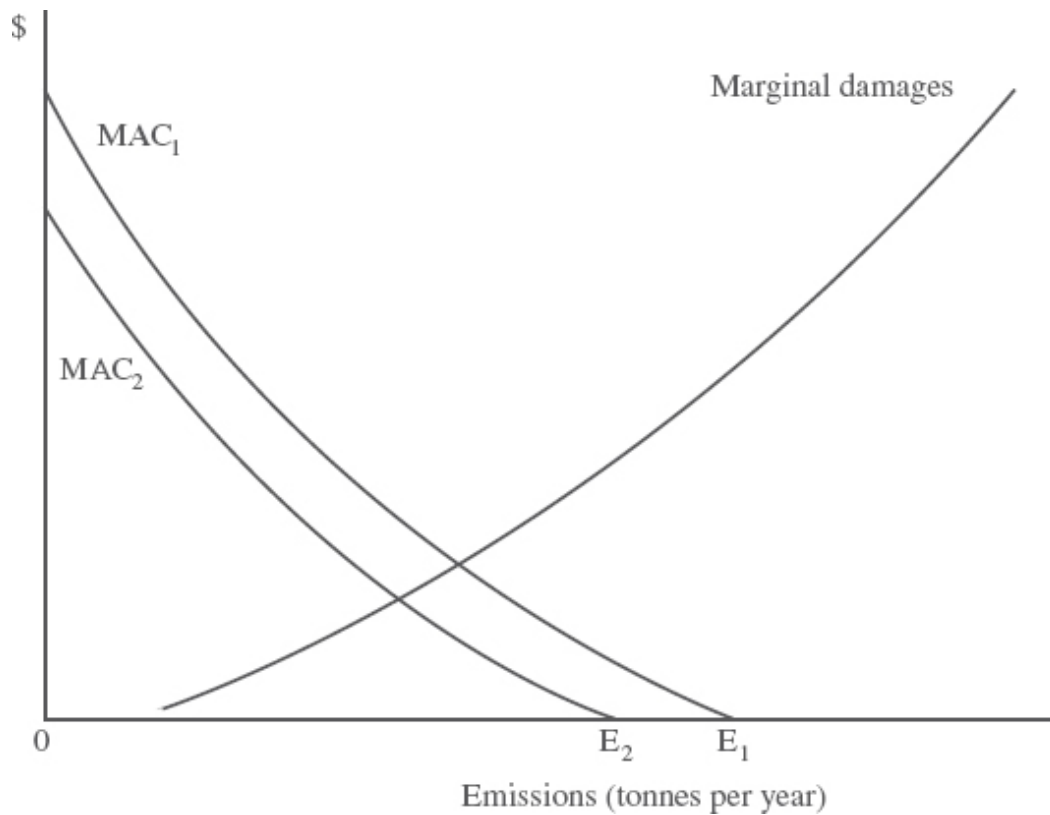
- Owners must be able to sell their property to any would-be buyer or there is less incentive to preserve its long-run productivity.
- There must be a complete set of markets so that private owners may capture all social values associated with the use of an environmental asset.
- These problem Inhibit the ability of the negotiations between two parties from reaching social efficiency.

Recycling and Green Goods

- Green goods provide the same pleasure to a consumer but have a lower amount of environmental impact.
- For example a paper product made from recycled paper fibers creates less pollution than virgin fibers. Other products remove pollutants such as mercury from batteries or phosphate from detergents.
- If the consumer is willing to pay for the green good and substitute it for a normal product, there will be a reduction in the MAC curve.

Recycling and Green Goods

Figure 10-5 How Green Goods Affect the Marginal Abatement Cost Curve



Recycling and Green Goods

- If the consumer is willing to pay for the green good and substitute it for a normal product, there will be a reduction in pollution and the MAC curve. This occurs because the marginal abatement cost function shifts down.
- If total output of paper stays the same, then total pollution must fall. This is shown in Figure 10-5 , where MAC 1 is the aggregate MAC with only pollution-intensive suppliers and MAC 2 is the new curve obtained when some of the suppliers have much lower levels of emissions per unit output.

Chapter Overview

In this chapter, examples of decentralized approaches to environmental quality improvement were examined.

- The first was to rely on liability rules, which require polluters to compensate those they have damaged.
 - Transaction costs preventing the socially efficient level of pollution from being reached.
- Second was reliance on the institution of private-property rights.
 - Private bargaining and challenges associated with reaching social efficiency.
- Thirdly we discussed the introduction of green goods into an economy by the private sector in response to consumer demands for less pollution intensive products.
 - Reduction of pollution through recycling.