



REDUCING EXTERNALITIES

Because competitive markets produce too many negative externalities, government intervention may provide a social gain.

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If a government has sufficient knowledge about pollution damage, the demand curve, costs, and the production technology, it can force a competitive market to produce the social optimum.

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A governmental limit on the amount of air or water pollution that may be released is called an *emission standard*. A tax on air pollution is called an *emission fee*, and a tax on discharges into the air or waterways is an *effluent charge* (**Emission charge**, in general).

EMISSIONS FEE

The government can impose costs on polluters by taxing their output or the amount of pollution produced.

In the example that we saw, taxing output works as well as taxing the pollution directly because of the one-on-one relationship between output and pollution

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In the paper mill example, if the govt knows the marginal cost of gunk, MC^g , it can set the output tax equal to this marginal cost curve $t(Q) = MC^g(Q)$ so that the tax varies with the output

Manufacturer's after-tax marg. cost:

$$MC^s = MC^p + t(Q)$$

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The output tax causes a manufacturer to internalize the externality

- and bear the cost of the harm that one inflicts on others (or to capture the benefit that one provides to others)

FIGURE- TAXES TO CONTROL POLLUTION

Placing a tax on the firms that is equal to the harm the gunk, $t(Q) = MC^g(Q)$, causes them to internalize the externality, so their private marginal cost is the same as the social marginal cost, MC^s

As a result, the competitive after-tax equilibrium is the same as the social optimum, e_s .

FIGURE- TAXES TO CONTROL POLLUTION

Usually, however, the government sets a specific tax rather than a tax which varies with the amount of pollution, as $t(Q) = MC^g(Q) = Q$ does.

FIGURE- TAXES TO CONTROL POLLUTION

Alternatively, applying a specific tax will also result in the social optimum.

Problem: for our earlier example, what constant, specific tax, t , on output (per ton of paper) could the government set to maximize the total welfare?

FIGURE- TAXES TO CONTROL POLLUTION

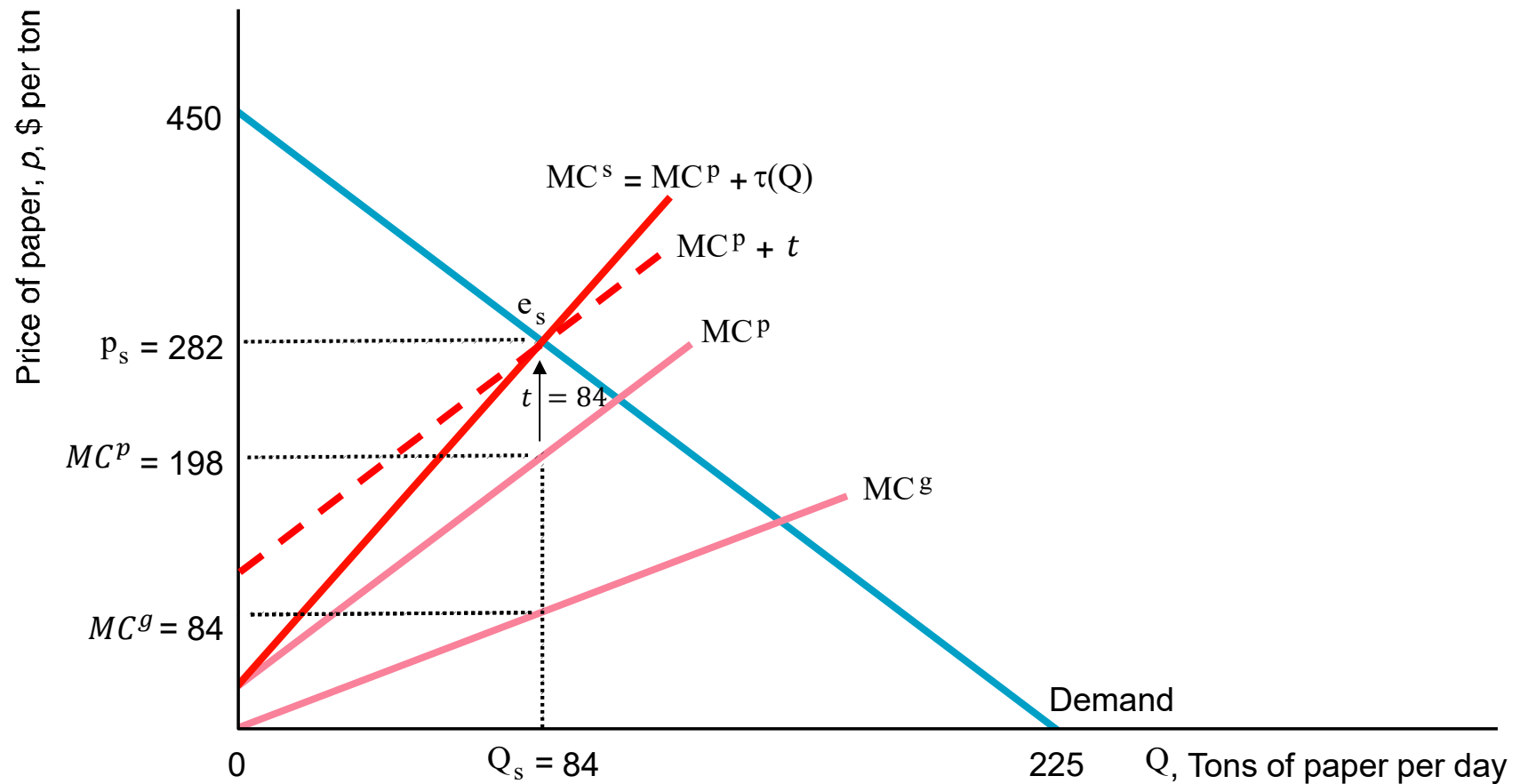


FIGURE- TAXES TO CONTROL POLLUTION

All that is required is that the tax equals the MC of pollution at the optimum quantity;

the tax need not equal the MC of pollution at other times