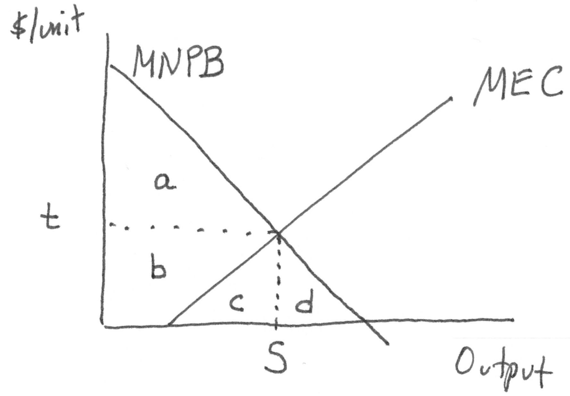
Answers to Exam 2, Econ. 3250, Spring 2011

(1)



a) With no regulation, profit is the entire area under the MNPB curve, a+b+c+d. (This is because the total amount of something equals the area under the curve of that thing's marginal value.)*

b) The optimal standard is "S" (where MEC = MNPB). Area "d" is lost to the firm (it's not produced any more). Profit is a+b+c.

c) The optimal tax is "t" (where MEC = MNPB). Area "d" disappears as in part (b). Areas b+c are paid as taxes to the government. The only profit that remains is "a."

*And therefore profit is maximized where MNPB = 0.

②

Suppose there are two polluting firms, A and B.

Let A's Marginal Abatement Cost be MAC_A, and B's be MAC_B.

Suppose current emissions are 5 from A and 5 from B, and it is desired to reduce to total emissions to 8.

Standard: Force both firms to reduce emissions to 4 each. This has an emission control cost of $MAC_A + MAC_B$.

Tradeable Permits: The permit price will be between MAC_A and MAC_B (since if it was lower, both firms would want to buy and neither would want to sell, and if it was higher, both would want to sell and neither would want to buy). Suppose $MAC_A > MAC_B$ (if ~~that~~ that's not true, change the labels of A and B: if $MAC_A = MAC_B$, this proof will not work). "A" will want to buy a permit, because that only costs it the permit price "p," which is cheaper than abating since $\underline{MAC_A > p} > MAC_B$.

"B" will want to sell a permit, because it'll receive p for it, which is more than MAC_B (the money it costs to abate more since B has sold a permit).

The result is that A does not abate (A still emits 5), B's emissions go from 5 to 3, total emissions go from 10 to 8 as required, and total abatement costs are $MAC_B + MAC_B$, which is less than under the standard.

③

"Rent seeking" means trying to influence government officials to establish or interpret laws or regulations in a way that, benefits a special interest group.
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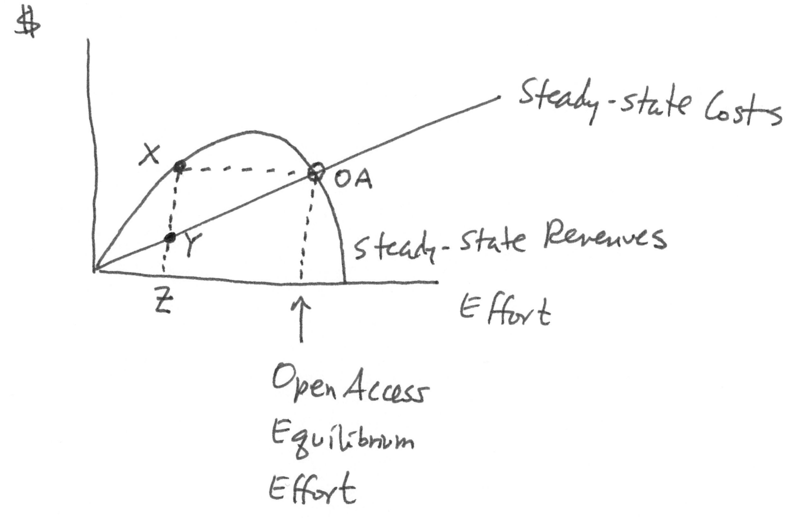
In the context of pollution regulation, it entails firms trying to get government to reduce pollution controls, or not implement stricter pollution controls, or interpret pollution regulations in a way favorable to that firm.

④

a)



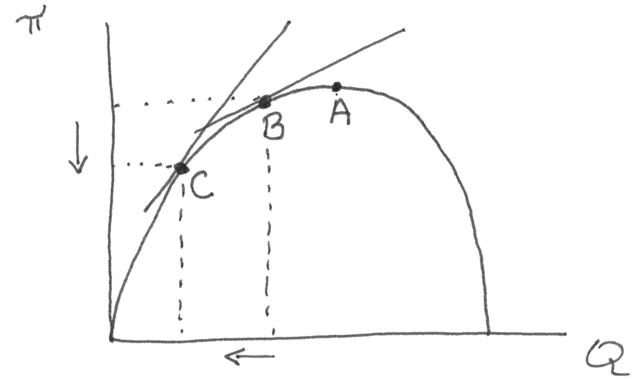
"OA" is open access equilibrium point.

b) Open Access requires zero profit ("π" = 0), because $\pi > 0$ would lead firms to enter the fishery (which they are free to do because access is open, that is, unrestricted), and $\pi < 0$ would lead firms to exit. Zero profit occurs where revenue = cost, hence the point labeled "OA."

c) Point Z has the same revenues "X" as OA, but Point Z's costs are lower ("Y") than OA's, so its profit is higher. Z is to the left of O.A. Equilibrium Effort, so Z's effort is less and fish stock is more.

"Z" is close to the profit-maximizing level of effort, but only by coincidence would it be exactly equal to the profit-maximizing level of effort.

5



Suppose A is the short-run profit-maximizing point.

Following the Hotelling Rule means starting at a point like B and then moving to a point like C. This is because the marginal profit at B (shown by the slope of the tangent line) is less than that at C, and the Hotelling Rule requires that marginal profit rise over time.

So over time, Q ↓ and π ↓ as marginal profit rises.

(6)

In a deposit-refund system, the price of a good is increased by the amount of the "deposit," then that amount is returned to whoever returns the product (after it's used) to an appropriate location.

In the US today, such systems are used by governments to encourage recycling and reduce municipal solid waste disposal.

In other times and places, such systems have been used by private firms to, for example, encourage customers to return bottles so the firm can reuse them instead of having to buy new bottles.