

Externalities

Any cost or benefit that arises due to an activity and is not borne by the producers or accrue to consumers, but rather falls on people outside the transaction.

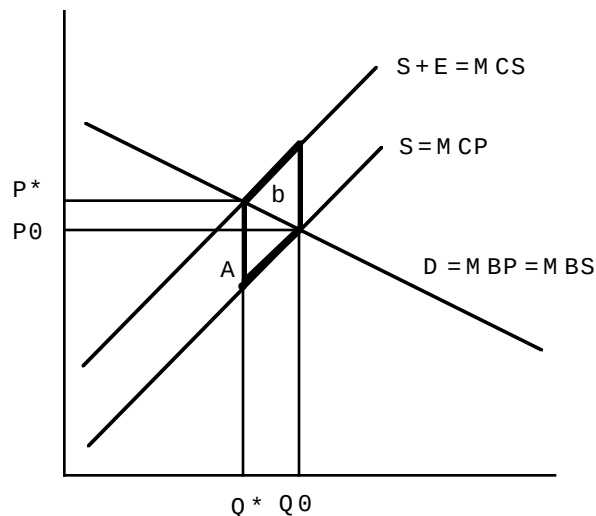
Negative (external diseconomies): pollution, noise

Positive (external economies): vaccines, emission reduction from purchasing electric vehicles

The key distinction is that between private costs/benefits (those that accrue to parties to the transaction) and social costs/benefits (those that accrue to parties who are strangers to the transaction).

External diseconomy

per-unit External cost = E



Add E to MCP to get MCS .

What would we like to have happen in this market? We'd like to equate MBS with MCS , reaching P^* and Q^* .

How do we get that to happen? By taxing behavior. What kind of tax should we impose? The most obvious is a tax on production, since that increases the costs of production and shifts the supply curve up. What if we taxed consumers (a consumption tax)--would that work? Yes. You're reducing marginal benefit by the amount of the tax, shifting demand down to intersect at point A. Since consumers demand triggers production, consumers are just as culpable for the externality as are producers. You end up with different levels of P for each solution, but in the latter case the tax is borne out of pocket by consumers and doesn't appear on the graph.

To the extent that there's international trade involved, correctly identifying the source of the externality (who bears the tax is highly important. There will be either more or less consumed depending on whether you export or import the good. If you export the good, you want to do production to get all of it if the problem arises from production; if you import the good and the problem arises from consumption,

you want to tax consumption.

What is the cost of not correcting this diseconomy? $E(Q_0 - Q^*)$? NO, because there are other things going on here: Q changes, so there's a gain in pollution reduction, but also a loss on consumer's side because they don't get as much surplus, and also a gain in reduction in production costs because there's less Q produced. Have to account for everything.

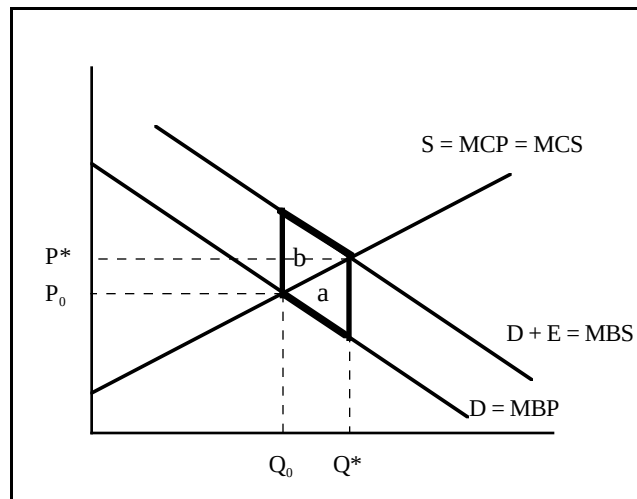
The cost is triangle b. This is deadweight loss, a.k.a. excess burden. Why is it this triangle? Do the marginal analysis: it's a sum of marginal costs of a series of excess units. Because the marginal benefit and cost for each unit is different (MB increases as you move left, MC decreases), the contribution to the externality of each unit is different, and you can't do a simple multiplication.

The triangle that includes point A is the deadweight loss due to imposing the tax.

The parallelogram is the value of the externality caused by producing above the optimal amount.

The difference between the parallelogram and deadweight loss due to imposing the tax is the amount of loss that occurs if the externality is not corrected, that is, if we don't impose the tax.

External economy



Here, we want to subsidize (closed economy, doesn't matter who gets it; open economy, it does and you'd need to identify the source of the economy to target the subsidy properly).

The analysis is the same as in negative externalities.

By stimulating output, we incur additional costs and get diminishing benefits for each additional unit. This additional cost is shown as triangle a.

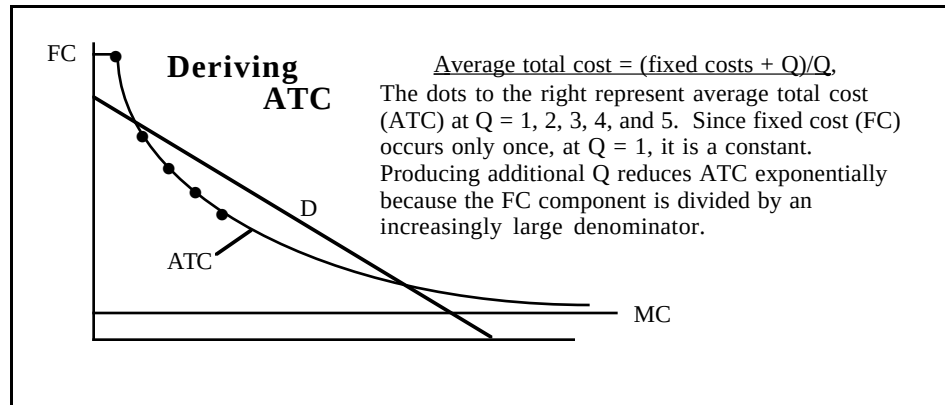
The parallelogram is the total value of the externality.

The difference between triangle a and the parallelogram is the deadweight loss incurred if the subsidy is not made, that is, if the externality is not corrected. This is represented by triangle b.

Monopolies

Any monopoly will do, whether natural or not. If monopolies are not natural, there may be other policies that may be better than those we use for natural monopolies (like breaking up AT&T).

Natural monopolies are special: they are characterized by huge entry costs (expertise, fixed costs) that make entry difficult.

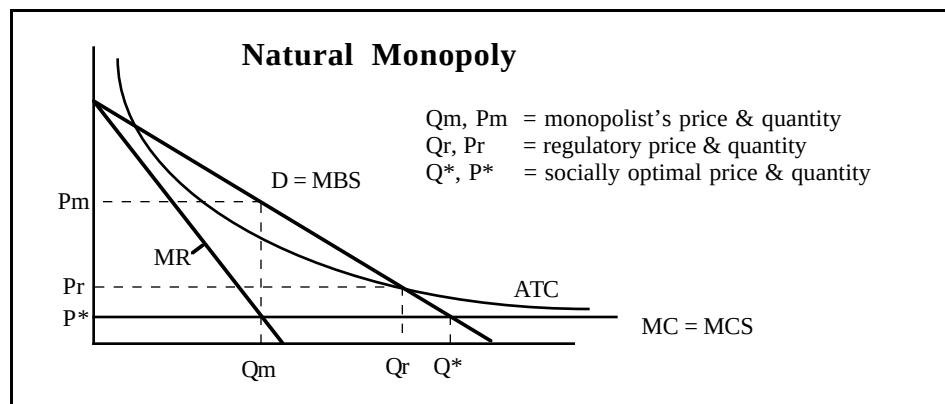


Fixed costs are incurred once, at the beginning. This results in average total costs continually dropping, but always above the marginal cost.

For huge demand levels, ATC is almost the same as MC and is not interesting. Natural monopolies are only interesting when the demand supports production in a range where ATC is still dropping significantly from one unit to the next.

Natural monopoly is a situation where entry of another firm makes survival of either impossible (shifting the curve back about half makes it hit on or below the marginal revenue line.)

For monopolists, a price change on one unit means a change on all units (absent discrimination, which is difficult), so MB does not equal MC for a monopolist; for them, $MC = MR$.



We'll assume linear demand and use an inverse demand curve:

$$P = a - bQ.$$

This is easiest to use when getting marginal demand curve. Corresponds to normal demand curve $Q = a/b - 1P/b$.

$$\text{total revenue} = PQ = aQ - bQ^2.$$

derivative of TR w/ respect to $Q = MR = a - 2bQ$. This is another linear curve, with the same y intercept as demand, but with a slope twice as steep as demand.

Inverting this equation, you get $Q = (a - MR)/2b$, or $a/2b - MR/2b$. Using this, you'll notice that the horizontal intercept is exactly half that of the demand curve.

What does a freely-acting monopolist do in setting quantity and price? They set output at the intersection between marginal revenue and marginal cost, but charge the price supported by demand for that level of Q . Here, they're Q_m and P_m .

Note that there are markets with low MC but that won't exist because the fixed costs of producing make average total cost higher than demand at all points, and even maxed profits would be negative.

Ideally, we'd like to have $MCS = MBS$, over at Q^* (P^* would equal MC in that case).

What are we giving up when we allow monopolists free reign?

What should we do? We'd like to tax them, but that would shift MC up, which would shift Q to the LEFT. Adding to fixed costs wouldn't change behavior either, except if you raised them so high that they went out of business, which is presumably bad since there's demand for the good.

What you'd have to do is subsidize the monopolist enough to raise marginal revenue so the intersection is at the right place. This is politically difficult since the subsidy would be so huge.

What we really do is regulate: tell them how much they can charge or tell them how much they must produce and sell on the market.

What happens if you instruct the monopolist to charge MC? They'll go out of business because the price per unit (average revenue per unit) is smaller than their average costs.