

How to draw an externality diagram without memorising

The following rules will help you draw any externality diagram without memorising.

The rules

- 1 In a production externality, the supply curve splits into two; in a consumption externality, the demand curve splits into two.
- 2 Supply reflects costs; demand reflects benefits.
- 3 The market equilibrium quantity Q_m corresponds to private costs and benefits, MPC and MPB ; the social optimum reflects social costs or benefits.
- 4 In a negative externality $Q_m > Q_{opt}$, meaning that *the market provides too much of a bad thing*; in a positive externality $Q_m < Q_{opt}$, meaning that the market provides too much of a good thing.

How to use the rules

- 1 Draw a demand and supply diagram and label the axes P and Q.
- 2 For a production externality draw two parallel upward sloping curves; for a consumption externality draw two parallel downward sloping curves. Find the two equilibrium quantities on the Q axis (but do not label them yet).
- 3 In a negative externality, since $Q_m > Q_{opt}$, label the larger quantity Q_m and the smaller quantity Q_{opt} ; in a positive externality, since $Q_m < Q_{opt}$, label the larger quantity Q_{opt} and the smaller quantity Q_m .
- 4 Using rule 3 above, Q_m gives MPC and MPB , while Q_{opt} gives MSC and MSB . You can now label all the curves. (Note that the demand curve, D and supply curve, S represent private benefits and costs; therefore $D = MPB$ and $S = MPC$.)
- 5 Find the triangle that points to Q_{opt} , and that lies in between the two curves that have split. This is welfare loss.

