

Solution to Quiz

ENVIRON 805K

October 16, 2017

Note: If you derive a wrong final number, you will lose 1 point for each.

1. (10')

Complete property rights; Atomistic participants; Complete information; No transaction costs. (Each of them is worth 2.5 points.)

2. (10')

	excludable	non-excludable
rivalry	private goods	open-access resources
non-rivalry	club goods	public goods

(You should not only explain the definition of rivalry and excludable. If you did not point out the four kinds of good, you will lose 4 points.)

3. (10')

The marginal damage to adults is 4. The marginal damage to kids is $2p$. Therefore, the aggregate marginal damage for the public bad is $4 + 2p$.

4. (30': each of the sub-question is worth 10')

(a) Let $Q^d = Q^s$, we have $P = 2$ and $Q^d = Q^s = 4$.

(b) In Figure 1, the yellow part is the change in consumer surplus while the red part is the change in producer surplus.

Therefore, $\Delta CS = -\frac{10}{9}$ and $\Delta PS = -\frac{20}{9}$. The change in total surplus is $-\frac{10}{3}$.

(c) $\frac{1}{3}$ of the tax is paid by the consumer while $\frac{2}{3}$ of it is paid by the producer. (Most of you misunderstood this question. Tax incidence is the division of the burden of a tax between consumer and producer.)

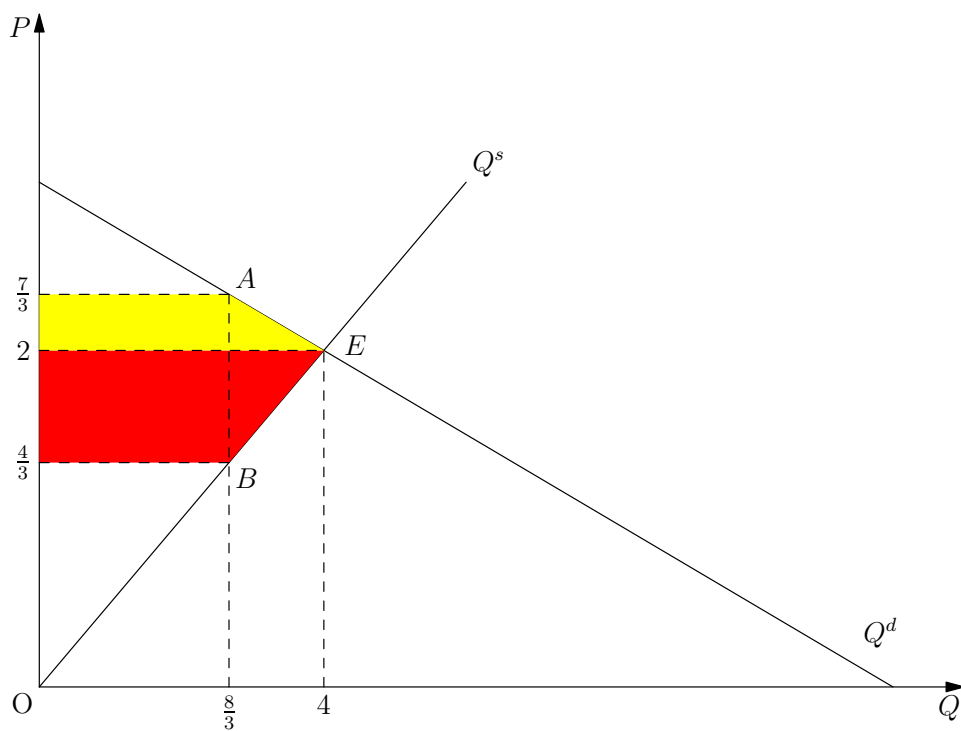


Figure 1: Equilibrium with Tax