

Market Failures: Key

1. Which of the following satisfy the criteria for being a public good?

a. A bottle of barbecue sauce is a private good. It is both excludable and rivalrous in consumption.

b. An article on a newsite may be non-rivalrous in consumption but it is excludable (*e.g. paywalls*). It is not a public good.

c. Lobsters in the Gulf of Maine are private goods, both excludable and rivalrous in consumption.

d. Clean air is usually considered a public good because it is both non-excludable and non-rivalrous in consumption.

e. An mp3 file containing Moonbeam Ice Cream by Benson Boom is excludable and is thus not a public good. Also, can we really call this god awful song a “good.”.

2. False. Although having a government provide a public good is a common solution, the government may still underprovide or overprovide the public good.

3. Because they cannot be excluded from consuming the public good, households will have no willingness to pay. The demand curve vertical at zero (it is on top of the y-axis). There is no consumer or producer surplus.

Consider the private demand and supply for private jets:

Table 1: Market for Private Jets					
Units	Total Utility	Total Cost	Marginal Utility	Marginal Cost	Total MC
1	\$10M	\$1M	\$10M	\$1M	\$4M
2	\$19M	\$4M	\$9M	\$3M	\$6M
3	\$27M	\$8M	\$8M	\$4M	\$7M
4	\$34M	\$13M	\$7M	\$5M	\$8M
5	\$40M	\$19M	\$6M	\$6M	\$9M
6	\$45M	\$25M	\$5M	\$6M	\$9M
7	\$49M	\$31M	\$4M	\$6M	\$9M
8	\$52M	\$40M	\$3M	\$9M	\$12M
9	\$54M	\$50M	\$2M	\$10M	\$13M

5. Note that I have added marginal cost and marginal utility to the table. Equilibrium occurs when these are equal. The quantity is 5 and the price is \$6M.

6. This is a negative externality. We can think of the pollution as either imposing a \$3M public cost or a \$3M public disutility.

7. The final column now shows “total MC” which includes both the private marginal cost and the externality. Assuming that we cannot have partial units, the efficient equilibrium is 3 jets.

If the externality is not corrected then the fourth and fifth jets create deadweight loss. For the fourth jet, consumer surplus is \$1 million and private producer surplus is also \$1M. Factoring in the externality, deadweight loss from this jet is \$1M.

For the fifth jet, both consumer surplus and private producer surplus is zero. The externality thus creates \$3M in deadweight loss. Total deadweight loss is thus \$4M.

8. We can achieve this by charging a \$3M tax per jet.

9. It makes no difference. If the tax is imposed on the producers, then they make their decisions based on “total MC” because it includes the tax. Note that the equilibrium quantity is now 3 jets.

Suppose instead that the tax is paid by buyers. Including the tax, reduces their total marginal utility by \$3M.

Table 2: Market for Private Jets					
Units	Total Utility	Total Cost	Marginal Utility	Marginal Cost	Total MU
1	\$10M	\$1M	\$10M	\$1M	\$7M
2	\$19M	\$4M	\$9M	\$3M	\$6M
3	\$27M	\$8M	\$8M	\$4M	\$5M
4	\$34M	\$13M	\$7M	\$5M	\$4M
5	\$40M	\$19M	\$6M	\$6M	\$3M
6	\$45M	\$25M	\$5M	\$6M	\$2M
7	\$49M	\$31M	\$4M	\$6M	\$1M
8	\$52M	\$40M	\$3M	\$9M	\$0
9	\$54M	\$50M	\$2M	\$10M	\$-1M

Once again, notice that the new equilibrium is three jets.

10. False. Consider the example of where I split 100 *between me and you*. You might prefer 40 each, which is Pareto inefficient, to all \$100 to me, which is Pareto efficient.
11. False. If the equilibrium price is above the price floor, then it will have no effect and will not create deadweight loss.
12. because they are less exposed to the risk, they will engage in more of the behavior.
13. Moral hazard.
14. They will restrict quantity in order to raise the price. In a graph of supply and demand, neither shifts. Equilibrium instead moves up and to the left along the demand curve.
15. They will restrict quantity in order to lower the price. In a graph of supply and demand, neither shifts. Equilibrium instead moves down and to the left along the supply curve.
16. Anti-trust law is a potential solution to market power. Although usually used against the supply side, it may also be used against the demand side. Examples include breaking up monopolies, preventing mergers that may lead to excessive market power, or to prohibit collusion in setting prices.