Exercise Set 16
MARKET FAILURE

III. Questions

ALL GRAPHS ARE IN FIG. 1 AT THE END.

1. Describe the two characteristics of public goods. Explain why private firms are unwilling to produce and sell public goods.

> Characteristics:

>> a. You cannot prevent someone from using the good (non-excludability)

>> b. The amount of the good remains the same after one person consumes it (non-rival)

> If you cannot prevent someone from using the good (such as street lights on College Avenue), private firms will not be able to make a profit from the good. Therefore they will not produce the good in the first place.

2. Steel mills produce steel and generate pollution in the process. Will a tax on steel encourage the steel firms to produce less pollution? Explain, along with a sketch.

> Yes. See Fig. 1. A tax of t on steel shifts the marginal private cost up. The steel firms will now produce less steel ($Q_2 < Q_1$).

3. Externalities and public goods are examples of market failure.

   (c) Suggest a government policy that may be used to correct for a negative externality. Provide a sketch. (Make a careful distinction between private and social costs.)

> See Fig. 1. A tax on the good will reduce the amount of the good produced, and therefore reduce the externality.

(d) "In a free market, the output produced of a public good by private firms will exceed the socially optimal amount of the public good." Analyze the statement. (Think about the characteristics of public goods.)

> The statement is incorrect. Private firms will have no incentive to produce public goods (see Question 1); therefore, the output of such goods in a free market will be less than what is socially optimal.

Fig. 1
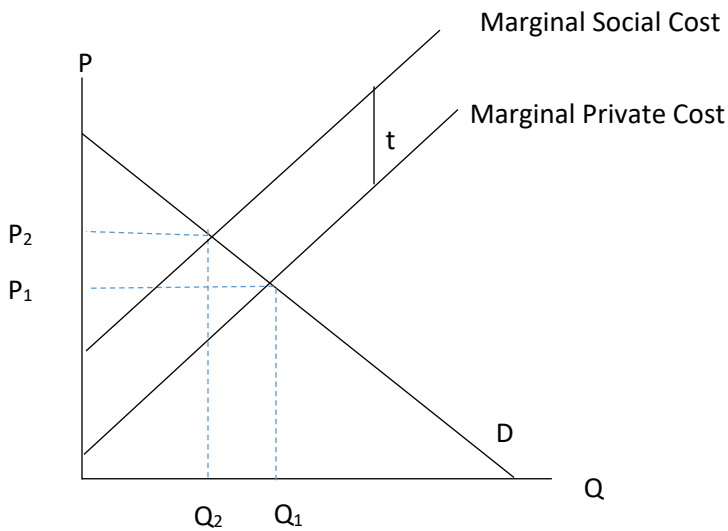
The production of a good results in a negative externality. In a free market (where firms do not have to account for external costs), firms will produce an output Q_1 of the good. But the socially optimal level of output is Q_2.

A tax of t on the good will ensure that firms will produce the socially desirable level of output— and generate the optimal level of externality. Consumers will end up paying more for the good, however ($P_2 > P_1$).