
Introductory Microeconomics

Homework 5: Policies in a Perfect Market

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1. T/F. The tax burden is shared equally between consumers and producers.
2. T/F. A very inelastic demand implies consumers will face most of the tax burden.
3. T/F. Competitive firms are unable to pass on a tax.
4. T/F. In a perfect market, the tax burden is independent of who actually pays the tax.
5. T/F. A binding price ceiling will generate shortages.
6. Consider the following market:

$$Q_D(p) = 12 - p \quad Q_S(p) = 2p$$

- (a) Find the equilibrium. Find the consumer surplus, producer surplus, and total surplus.

Suppose we tax consumers. The tax is \$3 per unit.

- (b) Find the new equilibrium quantity, the total price paid by consumers, and the price received by producers. Calculate the tax burden as follows:
 - For consumers: $\frac{p_C - p^*}{3}$ where p_C is the price they pay, p^* is the original equilibrium price of part (a), and 3 is the tax.
 - For producers: $\frac{p^* - p_P}{3}$, where p_P is the price they receive.
 - (c) Find the new consumer and producer surpluses, the tax revenue, and the deadweight loss of the tax. Illustrate with a graph.
 - (d) Assume the tax is paid by the producers. Repeat (b) and (c).
7. Same market as in the previous exercise. Now instead of a tax, the government subsidizes consumers. The subsidy is \$3 per unit.
- (a) Find the new equilibrium. What's the price consumers pay? What's the price producers receive?
 - (b) Find the new consumer and producer surpluses. By how much did they increase relative to the equilibrium of 6(a)?
 - (c) What's the cost of this policy for the government?
 - (d) What's the dead weight loss of the subsidy?
8. Same market as in the previous exercise. Instead of a subsidy, the government implements a price ceiling of $p = 2$.
- (a) How many units are produced?
 - (b) Find the consumer and producer surpluses. Find the dead weight loss.

(c) Illustrate your answers in a graph.

9. Consider the following market:

$$Q_D(p) = 12 - \frac{p}{5} \quad Q_S(p) = p$$

(a) Find the equilibrium (Q^*, p^*) .

(b) Find the elasticity of supply and the elasticity of demand. You may calculate the elasticity between $p_1 = p^* - 1$ and $p_2 = p^* + 1$.

(c) If the government implements a tax in this market, who's going to pay most of it?

10. Illustrate graphically how a minimum wage policy generates unemployment in a perfect market.