

Homework Assignment 8. Due: Thursday, April 7.

1. (5 points) Consider a monopolist who has a total cost curve of $C=5Q+0.5Q^2$ (the corresponding marginal cost function is given by $MC=5+Q$, and the average cost function is given by $ATC=5+0.5Q$). The market demand is given by $P=200-0.5Q$ (the corresponding marginal revenue function is given by $MR=200-Q$).
 - a. What is the optimal production level for this monopolist, what is the price charged, and what is the level of profits?
 - b. Suppose that a \$10 unit tax is levied on buyers in this market. What is the new level of production, prices buyers pay and monopolist receives as well as monopolist's profits? Also what is the tax revenue in this case?
 - c. Now assume that instead of buyers, a \$10 tax is levied on the monopolist (hint: this tax will change the cost schedule of the monopolist – new marginal cost and average cost functions will be $MC'=10+5+Q=15+Q$, $ATC'=10+5+0.5Q=15+0.5Q$). What is the new level of production, prices buyers pay and monopolist receives as well as monopolist's profits? Also what is the tax revenue in this case?
 - d. Comment on tax incidence depending on which side of the market the tax is imposed comparing your answers in (b) and (c)?
2. (1 point) Suppose that government imposes a tax on air travel. Suppose that there are two types of travelers – business and vacation. Assume also that the elasticity of the demand for air tickets is -0.5 for business travelers, and -4 for vacation travelers. Which type will bear relatively more burden of this tax?
3. (1 point, problem 2 on page 302) According to estimates by Goolsbee [1998], purchases on the Internet are highly sensitive to tax rates, and applying existing sales taxes to such purchases would substantially reduce the number of online buyers and the amount of online spending. What are the implications for the incidence of a tax levied on Internet sales?
4. (3 points) Consider a general equilibrium economy with two goods – cigarettes and all-other-goods produced by competitive firms using two inputs (labor and capital). Assume that cigarette production is capital intensive and production of all-other-goods and labor intensive.
 - a. What are the effects of a cigarette tax in this economy?
 - b. What are the effects of a tax on labor used in the production of cigarettes?