

Homework Assignment 9. Due: Thursday, April 14.

1. (3 points) Ashley divides her working time between home production and market production. The Value of marginal Product (=productivity in dollar terms) of market production is given by $VMP_{mkt} = 50 - 2H_{mkt}$, where H_{mkt} is the number of hours spend on market production, and the Value of Marginal Product of home production is given by $VMP_{home} = 45 - 3H_{home}$, where H_{home} is the number of hours spend on home production. What is the optimal division of her time between two types of production if there are a total of 40 hours to be worked between work and home? Suppose that government taxes Ashley market income by 10%. What is the new optimal division of time? What is the excess burden resulting from this tax?
2. (7 points) Jim is maximizing his utility by consuming two goods – color markers and all other goods. The price of one color marker is $P_{CM} = \$0.5$, the price of all other goods $P_{OG} = \$1$. Jim's income is $I = \$50$, his utility is given by $U = (CM)^{0.5}(OG)^{0.5}$. (The respective optimal consumption levels are given by $(CM)^* = 0.5*(I/P_{CM})$, $(OG)^* = 0.5*(I/P_{OG})$. Now assume that government imposes a \$.50 tax on color markers. (The color markers are produced competitively so that market supply is perfectly elastic – a tax is born completely by consumers.)
 - a. What is Jim's optimal consumption of color markers and all other goods before tax?
 - b. What is Jim's optimal consumption of color markers and all other goods after tax?
 - c. What are the tax revenues?
 - d. Compute the Equivalent Variation of this tax?
 - e. Compute the Compensating Variation of this tax?
 - f. Compare your answers to (c), (d), and (e).