AP/ECON 4070 3.0AF   Midterm Exam   Wednesday October 28 2015

time $= 60$ minutes

Do **all 3** questions. All questions count equally.

1. What would be the incidence of a \$12 unit tax in a perfectly competitive market in which the demand curve had the equation

$$Q^D = 24 - P^D$$

and the supply curve had the equation

$$Q^s = 2p_s - 12$$

where Q^D is the total quantity demanded of the good, Q^s is the total quantity supplied of the good, P^D is the price paid by buyers and p_s is the price received by sellers?

2. Is the local property tax a regressive tax, or a progressive tax? Explain your answer.

3. What is the excess burden of a 125% tax on clothing, in the following situation? [A tax of 125% means the price of clothing to the consumer is increased from its original price, to 225% of its original price.] The consumer has an expenditure function

$$E(P_F, P_C, u) = u\left[\sqrt{P_F P_C}\right]$$

where P_F is the price paid by the consumer for food, and P_C is the price paid by the consumer for clothing, and u is the consumer's utility (which means that the consumer's "Hicksian", or compensated demand functions for food and clothing are

$$F^H(P_F, P_C, u) = \frac{u}{2}\left[\sqrt{\frac{P_C}{P_F}} \ \right]$$

$$C^H(P_F, P_C, u) = \frac{u}{2}\left[\sqrt{\frac{P_F}{P_C}} \ \right] \quad)$$

The initial prices of food and clothing (in the absence of any taxes) are $p_F = 4$ and $p_c = 4$, and the consumer's utility was $u^0 = 18$ if there were no tax, and $u^1 = 12$ if there were a tax (of 125%) on clothing for which the consumer was not compensated.