

## CLAS MIDTERM 2 REVIEW

- Graph the substitution, income and total effects on  $c_1$  and  $c_2$  due to a decrease in the interest rate. What happens to savings? Assume the consumer is a borrower. Additionally, assume the consumer has a diminishing marginal rate of substitution and monotonic preferences.
- $U(c_1, c_2) = 4c_1^{1/2} + c_2$   
The interest rate is 100%, the deflation rate is 50%, and the endowment in both period 1 and period 2 is 2 units of consumption.
  - What is the real interest rate?
  - Solve for  $c_1^*$  and  $c_2^*$
  - Is this consumer a saver or a borrower? How much do they save or borrow?
  - Find the numerical SE, IE, and TE on  $c_1$  and  $c_2$  if the inflation rate changes to 0%
- Lucy is deciding how many hours to work. Her utility function is given by  $U(R, C) = R^{3/4} C^{1/4}$ , where  $R$  is the number of recreation hours per week and  $C$  is the dollars of consumption per week. The price of consumption is \$1 and Lucy can earn \$10 per hour at her job. In addition, Lucy's parents send her an allowance of \$400 per week. Assume that Lucy has 100 hours per week to allocate between working and recreation.
  - Solve for  $R^*$ ,  $C^*$ , and  $L^*$
  - Find the reservation wage
- The face value of a bond is \$16, the coupon rate is 50%, the market interest rate is 100%, and the bond has two years until maturity. Determine the price (present value) of the bond.
- Currently, my only wealth is from my house, which is worth \$32. However, there is a 25% chance that my house will get damaged and lose half its value. I am considering buying insurance for my house, and I know that my insurance company will charge me \$0.25 for every dollar of coverage I buy. I am allowed to buy coverage up to the amount of my loss (i.e. if my loss is \$5, I can buy a maximum of \$5 of coverage). If  $E[u(c_b, c_g)] = \frac{1}{4} \ln(c_b) + \frac{3}{4} \ln(c_g)$  how much insurance coverage will I buy? In addition, what are my levels of consumption in the good state and in the bad state?
- Demand is:  $q = 16 - 4p$ 
  - Find elasticity of demand when  $p = \$3$  and when  $p = \$0$
  - At what price does elasticity of demand equal -1?
  - Supply is:  $q = 4p$ . Find equilibrium price and quantity. In addition, find CS, PS, and total welfare.
  - The government sets a price ceiling at \$1. What is the new quantity? In addition, find CS, PS, total welfare, and deadweight loss.

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7. Consumer A:  $p = 40 - q$                       Consumer B:  $p = 30 - q$
- Find the equation for market demand
  - Consumer C:  $p = 5 - (q/2)$   
Find the equation for market demand (using consumers A, B, and C)