

Seminar questions: Consumer theory

Q1

An individual derives utility from the consumption of two goods x and y . Her utility function is given by $U(x, y) = \frac{1}{2} \ln x + \frac{1}{2} \ln y$. She maximises her utility subject to the budget constraint $M = p_x x + p_y y$.

- a. Write down her constrained optimisation problem.
- b. Write down the first order conditions and show that these imply that utility is maximised when the marginal rate of substitution=slope of the budget constraint.
- c. Use the first order conditions to solve for optimal demands x^* and y^* .
- d. Suppose $M=100$ and $p_x = 5$ and $p_y = 3$. Calculate x^* and y^* and compute the individual's utility.
- e. Now suppose that $p_x = 6$. Calculate x^* and y^* and compute the individual's utility.
- f. Show what has happened in parts e and f using diagrams. Show on the diagram the income and substitution effect of the price change.
- g. Using the utility function in Q1 and the optimal demands that you computed, derive the indirect utility function and confirm Roy's identity.

Q2

- a. Show how the neoclassical model of consumer behaviour can be extended to deal with labour supply
- b. Derive a backward bending supply curve for labour
- c. Using this model investigate the impact of:
 - a. Income tax
 - b. Lump sum tax
 - c. Overtime
 - d. Unemployment insurance
 - e. Minimum wage

