ECON3113
Microeconomic Theory I

Online Assignment #2 Solution

Online assignment #2

Question 1 2 pts

Which of the following is/are true?

A: The compensated demand curve is identical to the uncompensated demand curve if the income effect is absent.

B: When the price of a normal good falls, compensated demand for the good increases by more than uncompensated demand for the good

C: When the price of an inferior good rises, compensated demand for the good decreases by more than uncompensated demand for the good

- A only
- A, B only
- A, C only
- B, C only
- All of the above

- A: True. The uncompensated demand curve takes account of the substitution effect and income effect. The compensated demand curve takes account of the substitution effect only. If there is no income effect, then the compensated demand curve is identical to the uncompensated demand curve.
- B:. When the price of a normal good falls, both the substitution effect and income effect increase demand for the good. Therefore, uncompensated demand for the good is greater than compensated demand
- C: True. When the price of an inferior good rises, the substitution effect reduces demand for the good, but the income effect increases demand for the good. Therefore, compensated demand (substitution effect only) decreases demand by more than uncompensated demand (substitution effect + income effect)
- **Therefore A and C are correct**

Online assignment #2

Question 2 2 pts

Choose all the true statements:

A: When preferences are strictly convex, indifference curves have Diminishing Marginal Rates of Substitution (DMRS)

B: When DMRS is satisfied, the solution to the consumer's optimisation problem is unique

C: Demand functions generated by the consumer's optimisation problem are homogeneous of degree zero

D: If preferences are strictly monotone, then a consumer will always choose a bundle of goods lying on the budget constraint

- A, C
- B, C
- A, B, C
- A, C, D
- All are true

- A, B, C and D are all true
- See slides 3, 5 and 6 of Lecture Notes #6

Online assignment #1

Question 3 2 pts

Consider the quasi-linear utility function $U(x, y) = y + \ln(x)$, and budget constraint $I = P_x x + P_y y$. In equilibrium, demand for x is given by $x^d = \frac{P_y}{P_x}$. Which of the following is/are true?

A: Own price elasticity of demand for $x = -1$

B: Cross price elasticity of demand for $x = 1$

C: Income elasticity of demand for $x = 0$

- C only
- A only
- A and C only
- B and C only
- A, B and C

- A: True. We have $\varepsilon_{x,P_x} := \frac{\partial x}{\partial P_x}\frac{P_x}{x} = (-)\frac{P_y}{P_x^2}\frac{P_x}{x} = -1$
- B: True. We have $\varepsilon_{x,P_y} := \frac{\partial x}{\partial P_y}\frac{P_y}{x} = \frac{1}{P_x}\frac{P_y}{x} = \frac{P_y}{P_x}\frac{P_x}{P_y} = 1$
- C: True. We have $\varepsilon_{x,I} := \frac{\partial x}{\partial I}\frac{I}{x} = 0 \times \frac{I}{x} = 0$
- **Therefore, A, B and C are true**

Online assignment #1

Question 4 2 pts

Suppose that we have two goods and the following information about them:

Good 1: share of total spending = 40%, income elasticity of demand = 1.5

Good 2: share of total spending = 60%

What can we certainly say about Goods 1 and 2?

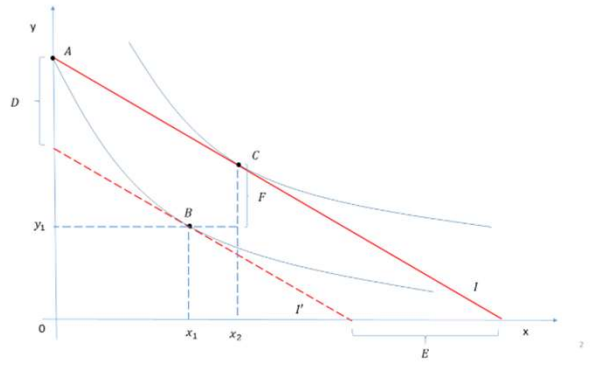
- ○ Good 1 is a normal good, Good 2 is an inferior good
- ○ Good 1 could be a Giffen good, Good 2 is a normal good
- ○ Both goods are normal goods

- See Lecture Notes #6 slide 46
- We have:
- $\varepsilon_{x_1,I} = 1.5, s_1 = 0.40$
- $s_2 = 0.60$
- And $s_1\varepsilon_{x_1,I} + s_2\ \varepsilon_{x_2,I} = 1$
- Substituting and re-arranging gives:
- $\varepsilon_{x_2,I} = \frac{1-0.40\times1.5}{0.60} \approx 0.667 > 0$
- **With $\varepsilon_{x_1,I}$, and $\varepsilon_{x_2,I}$ both positive, we may conclude that both Good 1 and Good 2 are normal goods**

Online assignment #1

Question 5 2 pts

In the figure below, a consumer has access only to good y and consumes at point A. What is the most that the consumer would pay to have access to good x?

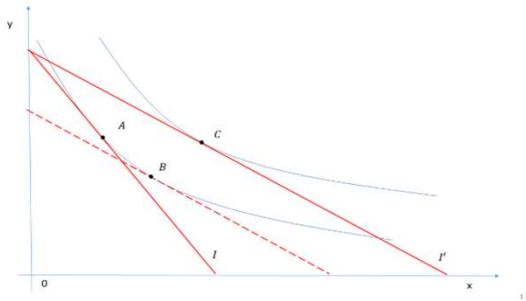


- The distance D multiplied by the price of y
- The ratio F/(x2-x1)
- The distance E multiplied by the price of x
- The ratio y1/x1

- The distance D multiplied by the price of y:
  - True. See Lecture Notes #6 slide 52
- All other options: There is no basis at all for any of these choices to be correct
- **Therefore, the correct answer is The distance D multiplied by the price of y**

Online assignment #1

Question 6 2 pts



In the diagram for goods x and y above, the budget constraint shifts from I to I'. Which of the following is/are correct?

A: The price of x has fallen

B: The substitution effect is from A to B

C: The income effect is from B to C

D: x is a normal good

- A only
- A and B only
- A, B and C only
- A, B, C and D

- A: True. In the budget constraint $I = P_x x + P_y y$, for $y = 0$, we have $x = \frac{I}{P_x}$. In the diagram, x increases, which, with I constant, must mean that the price of x, ie P_x, has fallen.
- B: True. The substitution effect is the change in demand for x in response to a change in its price with utility constant. This is the move from A to B.
- C: True. The income effect is the change in demand for x from B to the new budget constraint I'. This is the move from B to C.
- D: True: Since demand for x increases as a result of the move from B to C, the income effect is positive ie x is a normal good
- **Therefore, A, B, C and D are all correct**