Intermediate Microeconomics (Fall 2023)
Lecture 4
Consumer Choice

Part I

Budget – Constraints that _____ face as a result of _____. Determined by

- _____
- _____

- **Budget Constraint (also called Budget Line)** – All _____ _____ of goods for which the _____ of _____ is _____ to _____.

  ⇒ _____

  Rearrange algebra

  ⇒ _____

- Budget line is the _____ between _____ and _____ bundles.
- Economic Meanings of the Line
  - Vertical Intercept = _____
    ① The _____ of _____ could be _____ if _____ is _____.
    ② _____.
  - Horizontal Intercept = _____
    ① The _____ of _____ could be _____ if _____ is _____.
    ② _____.
  - Slope = _____ = _____
    Measures the _____ of _____ _____ _____
    (the _____ on the _____):
    in order to _____
    _____ of _____, have to
    _____
    _____ of _____.

- **Changes in Budget Line**
  - _____ changes: _____
    of the _____.
    - M ↑ ⇒ Shift BL _____
    - M ↓ ⇒ Shift BL _____
  - _____ changes: _____
    and the _____.
    - A _____ in the _____ of _____ is _____ to a _____ in _____.

Exercise 1

If prices and income in a two-good society double, what will happen to the budget line?

A. The intercepts of the budget line will increase.
B. The intercepts of the budget line will decrease.
C. The slope of the budget line may either increase or decrease.
D. Insufficient information is given to determine what effect the change will have on the budget line, but we know society is worse off.
E. There will be no effect on the budget line.

Part II

Consumer Choice – _____ the _____.

⇒ _____

- Point A:
- Point B:
- Point C:
- Point D:

- At Point C, the _____ is _____ to an _____

-
-
-

Exercise 2

Utility function is given by U (w, z) = $w^{\frac{1}{2}}z^{\frac{1}{2}}$, P_w = 1, P_z = 2, M = 50, find the best choice for a consumer.

Exercise 3

Monica consumes only goods A and B. Suppose that her marginal utility from consuming good A is equal to $\frac{1}{Q_A}$, and her marginal utility from consuming good B is $\frac{1}{Q_B}$. If the price of A is \$0.5, the price of B is \$4, and Monica's income is \$120, how much of good A will she purchase?

A. 0
B. 12
C. 24
D. 48
E. 120

Exercise 4

Suppose your utility from consuming X and Y is expressed as u (X, Y) = ln (XY), where ln () is the natural logarithm operator. Given this information, which of the following statements is NOT true?

A. The marginal utility of X may be positive or negative depending on the quantity of X and Y consumed.
B. The marginal utility of X does not depend on the quantity of Y consumed.
C. The marginal utility of Y does not depend on the quantity of X consumed.
D. All of these statements are not true.

Part III

Examples of Optimal Consumer Choice

- **Demanded Bundle** – The _____ of the consumer's, i.e., the _____, of Good 1 and Good 2 at some set of _____ and _____.
- **Demand Function** – The function that relates the _____ to the different values of _____ and _____, e.g., _____, _____, i.e., for each different set of _____ and _____, there will be a different _____ of _____ that is the _____ of the consumer.

- **Perfect Substitutes**

  Take the example of substituting Good 1 for Good 2 at a rate of one-to-one.

  ⇒ _____

  ⇒ Optimal choices (demand function) of Good 1:

$x_1 =$ { _____ when _____ ; _____ ; _____ and _____ that _____ when _____ the _____ ; _____ when _____ }

  ⇒ ① If two goods are perfect substitutes, the consumer will purchase the _____.

  ② If two goods are perfect substitutes and have the same price, the consumer _____ to purchase.

- **Perfect Complements**

  Take the example of consuming Good 1 and Good 2 in a proportion of one-to-one.

  ⇒ _____

  ⇒ The consumer is purchasing _____ of _____, _____ the _____ are. Let this _____ be denoted by _____.

  ⇒ Budget constraint: _____

  ⇒ Solving for x gives the optimal choices (demand functions) of Good 1 and Good 2:

  ⇒ Since the two goods are always consumed _____, it is just as if the consumer were _____ on a _____ that _____ a _____ of _____.

- **Neutrals and Bads**

  If Commodity 1 is a good and Commodity 2 is a neutral or a bad

  ⇒ The consumer would _____ on the _____.

  ⇒ The optimal choices (demand functions):

_____

_____

_____

_____

where

_____: _____.

_____: _____.

_____: _____ to _____ the _____.

_____: _____ – at the _____, _____ measures the _____ in the _____ by _____ the _____ by _____, assuming that unit is _____, i.e., _____ _____.

Lagrange's theorem states that _____ must _____ the _____:

- **Cobb-Douglas Preferences**
  - **The Exponent Representation: u (x_1, x_2) = $x_1^c x_2^d$**

- **The Log Representation: $u(x_1, x_2) = c \ln x_1 + d \ln x_2$**

- **Property of the Cobb-Douglas Preferences**

  If the consumer consumes _____ units of _____

  ⇒ _____

  ⇒ _____

  _____ the _____ for _____

  ⇒ _____

  ⇒
  - The fraction of income that the consumer spends on Good 1 is _____
  - The fraction of income that the consumer spends on Good 2 is _____

  ⇒ The Cobb-Douglas consumer always spends a _____ of _____ on _____, and the _____ of the _____ is determined by the _____ in the Cobb-Douglas function.

  ⇒ It is often convenient to choose a representation of the Cobb-Douglas utility function in which the _____.

  ⇒ If _____, immediately interpret _____ as the fraction of income spent on _____.