EE211
PRINCIPLES OF MICROECONOMICS

Topic 6:

The Theory of Consumer Choice

Topics

- Utility Theory (Cardinal Approach)
  - Utility
  - Marginal utility
  - Law of diminishing marginal utility

Part I: Utility Theory (Cardinal Approach)

- **Utility** is the *satisfaction* or *well-being* that a consumer receives from consuming some good or service.
  - Economists assume that, in making their choices, consumers are motivated to maximize their utility.

- **Total utility** is the total satisfaction resulting from consumption of a given commodity by a consumer.

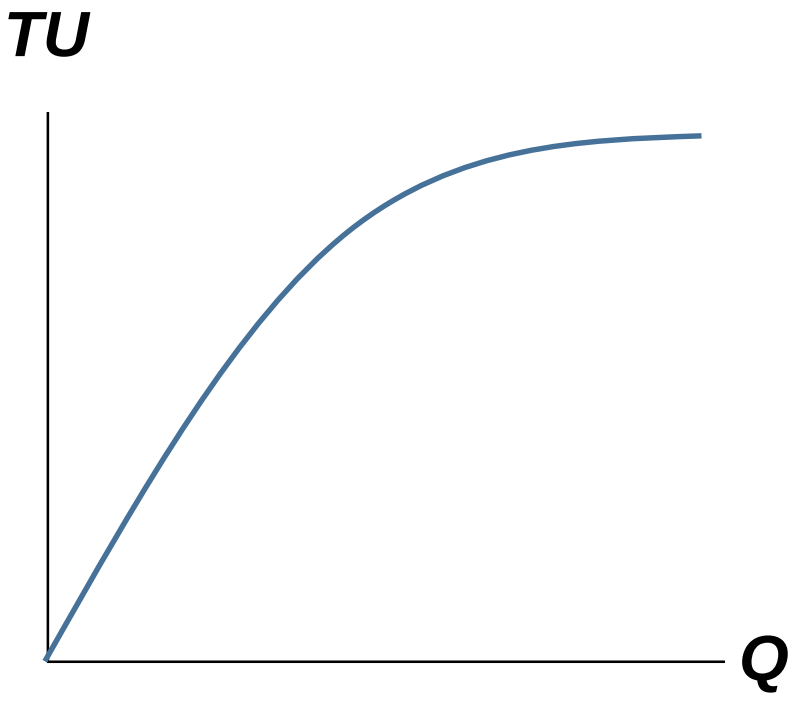
- **Marginal utility** is the *additional satisfaction* obtained by a consumer from consuming one *additional unit* of a commodity.
  - $MU_x = \frac{\Delta U}{\Delta X}$

Example: Utility Schedules

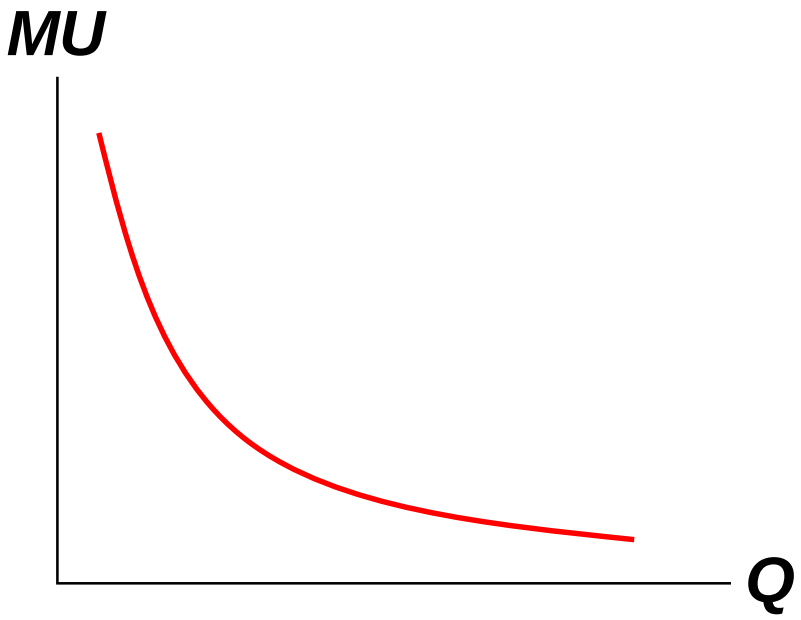
Number of Coffee Tom Drinks per day	Tom's Total Utility	Tom's Marginal Utility
0	0	
1	30	30
2	50	20
3	65	15
4	75	10
5	83	8
6	89	6

Example: Utility Graphs

- Total Utility



- Marginal Utility



Total utility rises, but marginal utility decreases, as consumption rises.

Diminishing Marginal Utility

- ***Law of diminishing marginal utility***

"The utility that any consumer derives from *successive* units of a particular product consumed over some period of time *diminishes* as total consumption of the product increases, if the consumption of all other products is unchanged."

Maximizing Utility

- The consumer's decision:

A utility-maximizing consumer allocates expenditures so that the utility obtained from the last dollars spent on each product is equal.

Mathematically,

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$$

Alternatively,

$$\frac{MU_X}{MU_Y} = \frac{P_X}{P_Y}$$

Example 1

Case	P_x	MU_x	MU_x/P_x	P_y	MU_y	MU_y/P_y
A	10	2	0.2 ↓	5	3	0.67 ↑
B	12	4	0.33 ↓	4	2	0.5 ↑
C	3	1	0.33	6	2	0.33
D	4	2	0.5	4	2	0.5
E	8	4	0.5 ↓	4	3	0.75 ↑

In each of the cases above, should the consumer's expenditure on each product rise or fall in order to maximize her utility?

Example 2

- Suppose you are buying Good X for $1 each and Good Y for $3 each, and the marginal utility of each good is the following.

# of X	MU_x	MU_x/P_x
1	30	30
2	20	20
3	15	15

# of Y	MU_y	MU_y/P_y
1	60	20
2	51	17
3	45	15

How many units of goods X and Y should you buy in order to maximize your utility?

Ans. There are two possible combinations that maximize U:

X=2 & Y=1 (where MUx/Px=MUy/Py=20)

X=3 & Y=3 (where MUx/Px=MUy/Py=15)