

Chapter 04
THEORY OF CONSUMER
BEHAVIOR



CONCEPTS OF
ECONOMICS

Do we use economics everyday?

- ✓ After how many glasses of water, is your thirst satisfied?
- ✓ If you drink an extra one, how does this make you feel?
- ✓ How do you decide if you will keep drinking water?

Utility

The want-satisfying power of a good or service.

Utility Analysis

The analysis of consumer decision making based on utility maximization.

Util

A representative unit by which utility is measured.

Total Utility

Sum-total of satisfaction which a consumer receives by consuming various units of commodity.

Marginal Utility

The change in total utility due to a one-unit change in the quantity of a good or service consumed.

$$\text{Marginal Utility} = \frac{\text{Change in total utility}}{\text{Change in number of units consumed}}$$

Marginal Utility - Calculation

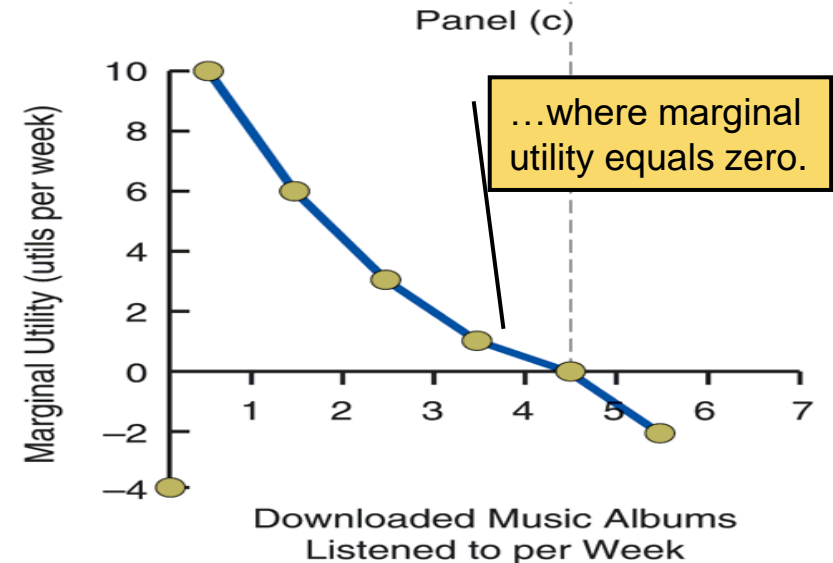
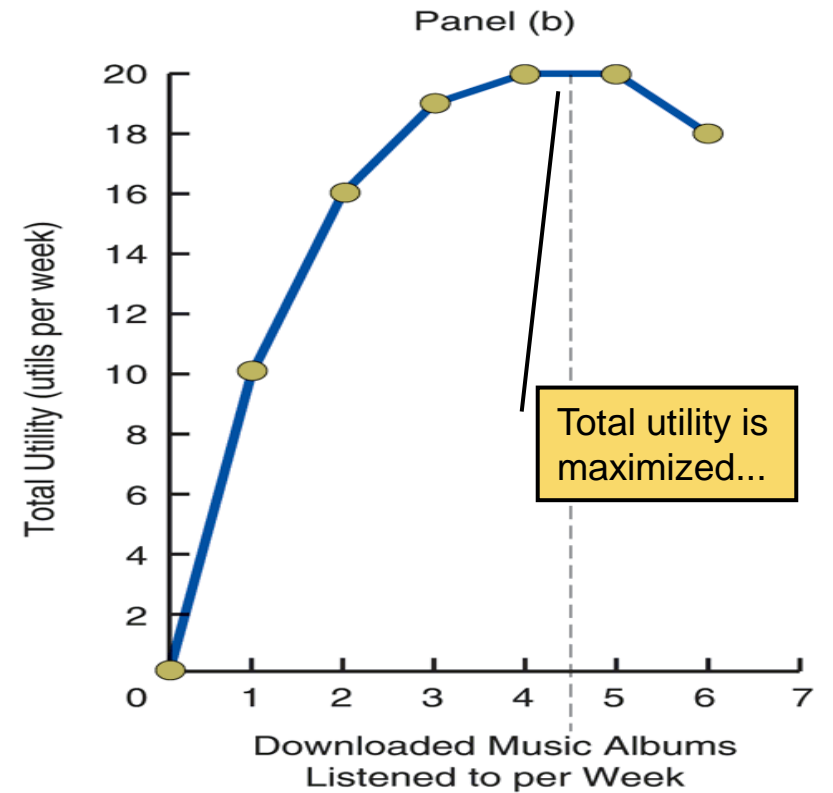
<i>Units of apples</i>	<i>Total utility</i>	<i>Marginal utility</i>
1	7	$7 - 0 = 7$
2	13	$13 - 7 = 6$
3	18	$18 - 13 = 5$
4	22	$22 - 18 = 4$
5	25	$25 - 22 = 3$
6	27	$27 - 25 = 2$
7	28	$28 - 27 = 1$
8	28	$28 - 28 = 0$

Utility Theory

Marginal Utility and Total Utility

Panel (a)

(1) Number of Music Albums Downloaded and Listened to per Week	(2) Total Utility (utils per week)	(3) Marginal Utility (utils per week)
0	0	
1	10	10 (10 - 0)
2	16	6 (16 - 10)
3	19	3 (19 - 16)
4	20	1 (20 - 19)
5	20	0 (20 - 20)
6	18	-2 (18 - 20)



- ✓ Marginal utility falls as more is consumed.
- ✓ Marginal utility equals zero when total utility is at its peak.

Law of Diminishing Marginal Utility



Quantity (Q)	Total Utility TU	Marginal Utility MU
1	30	30
2	55	25
3	75	20
4	90	15
5	98	8
6	98	0
7	88	-10
8	63	-25

Law of Diminishing Marginal Utility



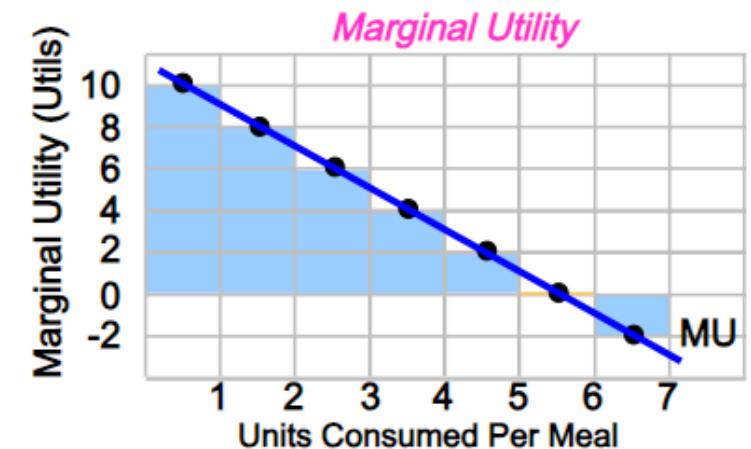
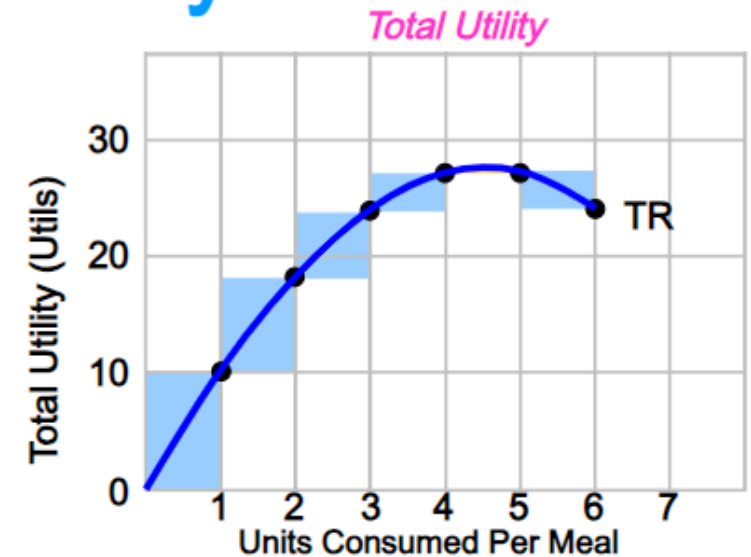
Law of Diminishing Marginal Utility

['lɒ əv də-'mi-nish-ɪŋ 'mɑːrj-nəl yü-'ti-lə-tē]

An economic law that states that, all else being equal, as consumption increases, the satisfaction derived from each additional unit decreases.

(1) Tacos Consumed Per Meal	(2) Total Utility, Utils	(3) Marginal Utility, Utils
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0	0	10
1	10	8
2	18	6
3	24	4
4	28	2
5	30	0
6	30	0
7	28	-2



Optimizing Consumption Choices

Law of Equi-Marginal Utility

“If a person has a thing which he can put to several uses, he will distribute it among these uses in such a way that it has the same marginal utility in all”.

$$\frac{MU \text{ of good A}}{\text{Price of good A}} = \frac{MU \text{ of good B}}{\text{Price of good B}} = \dots = \frac{MU \text{ of good Z}}{\text{Price of good Z}}$$

Optimizing Consumer Choices

Example

Consumer wants to spend his entire income (Rs.17)
Price of an Apple is Rs 2 each and Orange is Rs. 1 each.

Units of Commodities	Apple			Orange		
	Total Utility	Marginal Utility	$\frac{MUA}{P_A}$	Total Utility	Marginal Utility	$\frac{MU}{P}$
1.	25	25	$25/2 = 12.5$	30	30	$30/1 = 30$
2.	45	20	$20/2 = 10$	41	11	$11/1 = 11$
3.	63	18	$18/2 = 9$	49	8	$8/1 = 8$
4.	78	15	$15/2 = 7.5$	54	5	$5/1 = 5$
5.	88	10	$10/2 = 5$	58	4	$4/1 = 4$
6.	92	4	$4/2 = 2$	61	3	$3/1 = 3$

Optimizing Consumer Choices

Example

Total and Marginal Utility from Consuming Music Album Downloads and Sandwiches on an Income of \$26

(1) Music Album Downloads per Period	(2) Total Utility of Music Album Downloads per Period (utils)	(3) Marginal Utility (utils) MU_d	(4) Marginal Utility per Dollar Spent (MU_d/P_d) (price = \$5)
0	0	—	—
1	50.0	50.0	10.0
2	95.0	45.0	9.0
3	135.0	40.0	8.0
4	171.5	36.5	7.3
5	200.0	28.5	5.7

(5) Sandwiches per Period	(6) Total Utility of Sandwiches per Period (utils)	(7) Marginal Utility (utils) MU_s	(8) Marginal Utility per Dollar Spent (MU_s/P_s) (price = \$3)
0	0	—	—
1	25	25	8.3
2	47	22	7.3
3	65	18	6.0
4	80	15	5.0
5	89	9	3.0

Optimizing Consumer Choices

Example – Product prices are different

Total and Marginal Utility from Consuming Music Album Downloads and Sandwiches on an Income of \$26

(1) Music Album Downloads per Period	(4) Marginal Utility per Dollar Spent (MU_d/P_d) (price = \$5)	(8) Marginal Utility per Dollar Spent (MU_s/P_s) (price = \$3)
0	—	—
1	10.0	8.3
2	9.0	7.3
3	8.0	6.0
4	7.3	5.0
5	5.7	3.0

A consumer's money income should be allocated so that the last dollar spent on each good purchased yields the same amount of marginal utility (when all income is spent), because this rule yields the largest possible total utility.

Optimizing Consumer Choices

How a Price Change Affects Consumer Optimum

Income = \$26

$$Q_d = 4 \longrightarrow \frac{MU_d}{P_d} = \frac{36.5}{5} = 7.3$$

$$Q_s = 2 \longrightarrow \frac{MU_s}{P_s} = \frac{22}{3} = 7.3$$

Assume Price of Music Falls to \$4

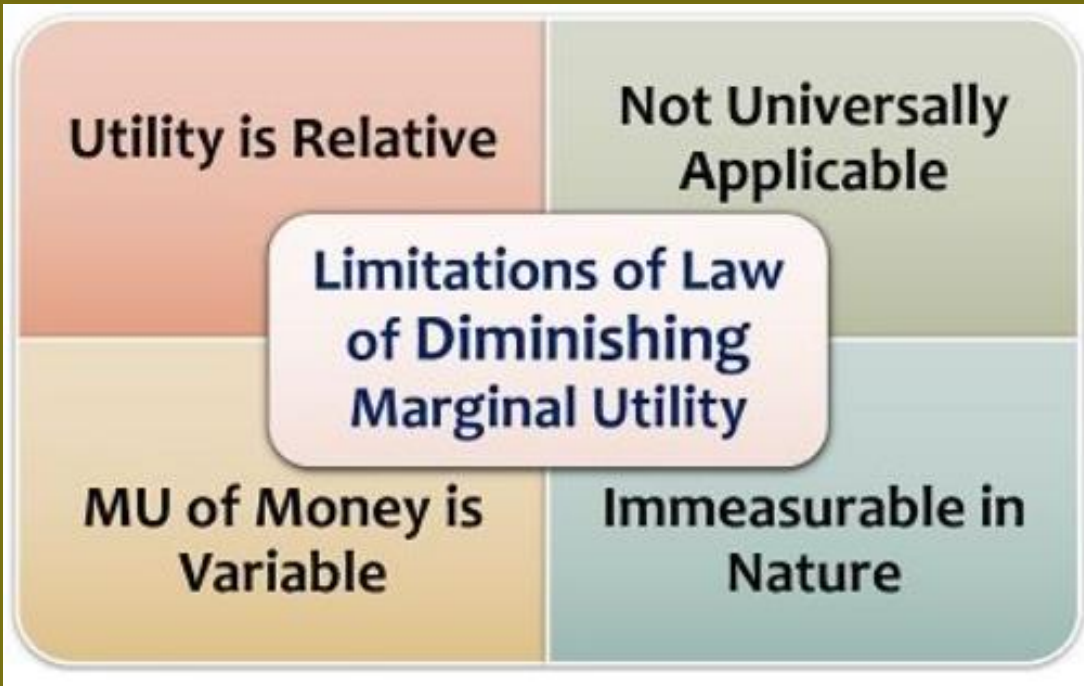
$$Q_d = 4 \longrightarrow \frac{MU_d}{P_d} = \frac{36.5}{4} = 9.125$$

$$Q_s = 2 \longrightarrow \frac{MU_s}{P_s} = \frac{22}{3} = 7.3$$

$$\text{Now} \longrightarrow \frac{MU_d}{P_d} > \frac{MU_s}{P_s}$$

Result \longrightarrow Buy more downloads
and MU_d falls

Optimizing Consumer Choices



utility of a commodity can never be independent

some commodities have an increasing marginal utility like addictive items, money, games, sports, collectables, etc.

satisfaction level derived from money keeps on increasing

Utility, i.e. satisfaction, happiness, generally cannot be practically measured in units.