The Theory of Consumer Choice

PART I

Questions being addressed:

- How to spend income on goods and services?
- Why maximizing **utility?**
- Why the **principle of diminishing marginal utility** applies to the consumption of most goods and services?
- How to use **marginal analysis** to find the **optimal consumption bundle?**

Utility and Consumption

Utility – the satisfaction or well-being that a consumer receives from consuming some good or service.

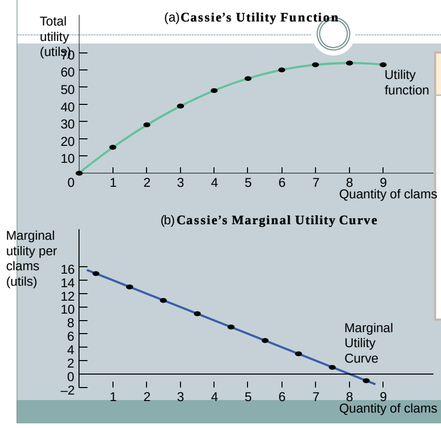
Theory of consumer behavior is based on the idea of utility maximization.

Total utility – the total satisfaction resulting from the consumption of a given commodity by a consumer.

- Consumption bundle – the set of all the goods and services an individual consumes

- Utility function – the relationship between an individual's consumption bundle and the total amount of utility it generates for that individual

Cassie's Total Utility and Marginal Utility



Quantity of clams	Total utility (utils)	Marginal utility per clan (utils)
0	0	
		15
1	15	
		13
2	28	
		11
3	39	
		9
4	48	
		7
5	55	
		5
6	60	
		3
7	63	
		1
8	64	
		–1
9	63	

Cassie's Total Utility and Marginal Utility

- Cassie's total utility depends on her consumption of fried clams.

- It increases until it reaches its maximum utility level of 64 utils at 8 clams consumed and decreases after that.

- The marginal utility curve slopes downward due to diminishing marginal utility; each additional clam gives Cassie less utility than the previous clam.

The Principle of Diminishing Marginal Utility

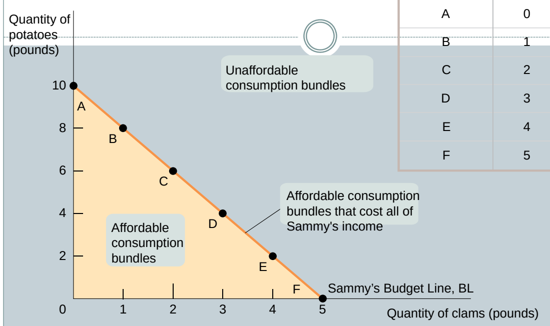
- The **marginal utility** of a good or service is the change in total utility generated by consuming one additional unit of that good or service.
- The **marginal utility curve** shows how marginal utility depends on the quantity of a good or service consumed.
- The **principle of diminishing marginal utility** says that each successive unit of a good or service consumed adds less to total utility than the previous unit.

Budgets and Optimal Consumption

- A **budget constraint** requires that the cost of a consumer's consumption bundle be no more than the consumer's total income.
- A consumer's **consumption possibilities** is the set of all consumption bundles that can be consumed given the consumer's income and prevailing prices.
- A consumer's **budget line** shows the consumption bundles available to a consumer who spends all of his or her income.

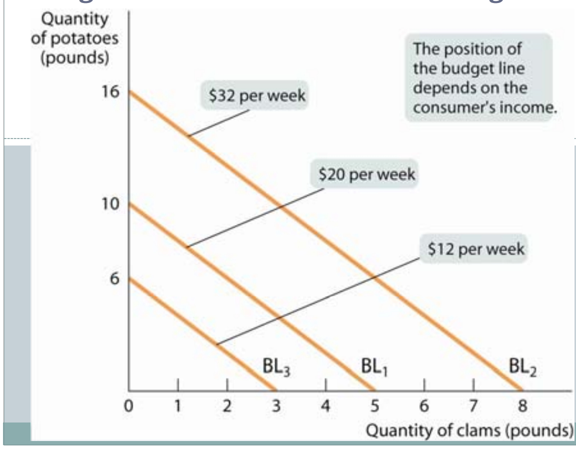
The Budget Line

Consumption bundle	Quantity of clams (pounds)	Quantity of potatoes (pounds)
A	0	10
B	1	8
C	2	6
D	3	4
E	4	2
F	5	0



The *budget line* represents all the possible combinations of quantities of potatoes and clams that Sammy can purchase if he spends all of his income. It is also the boundary between the set of affordable consumption bundles (the *consumption possibilities*) and unaffordable ones.

Changes in Income Shift the Budget Line



Sammy's Utility from Clam and Potato Consumption

Utility from clam consumption		Utility from potato consumption	
Quantity of clams (pounds)	Utility from clams (utils)	Quantity of potatoes (pounds)	Utility from potatoes (utils)
0	0	0	0
1	15	1	11.5
2	25	2	21.4
3	31	3	29.8
4	34	4	36.8
5	36	5	42.5
		6	47.0
		7	50.5
		8	53.2
		9	55.2
		10	56.7

Optimal Consumption Choice

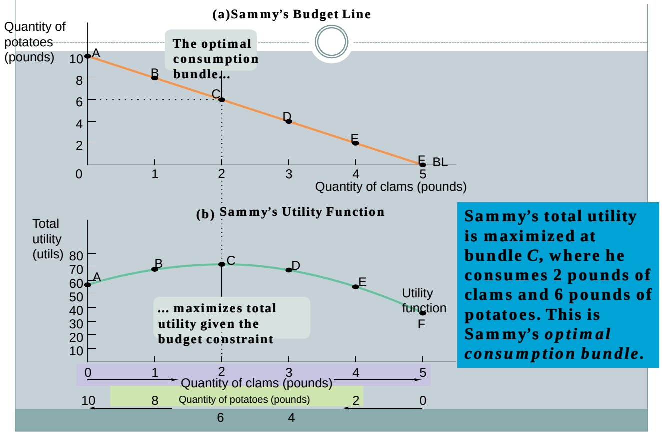
The **optimal consumption bundle** is the consumption bundle that maximizes a consumer's total utility given his or her budget constraint.

Sammy's Budget and Total Utility

Consumption Bundle	Quantity of clams (pounds)	Utility from clams (utils)	Quantity of potatoes (pounds)	Utility from potatoes (utils)	Total utility (utils)
A	0	0	10	56.7	56.7
B	1	15	8	53.2	68.2
C	2	25	6	47.0	72.0
D	3	31	4	36.8	67.8
E	4	34	2	21.4	55.4
F	5	36	0	0	36.0

Sammy's total utility is the sum of the utility he gets from clams and the utility he gets from potatoes.

Optimal Consumption Bundle



Sammy's total utility is maximized at bundle *C*, where he consumes 2 pounds of clams and 6 pounds of potatoes. This is Sammy's *optimal consumption bundle*.

Spending the Marginal Dollar

The **marginal utility per dollar** spent on a good or service is the additional utility from spending one more dollar on that good or service.

Marginal utility per dollar spent on a good
= Marginal utility of one unit of the good / Price of one unit of the good
$= MU_{good}/P_{good}$

Sammy's Marginal Utility per Dollar

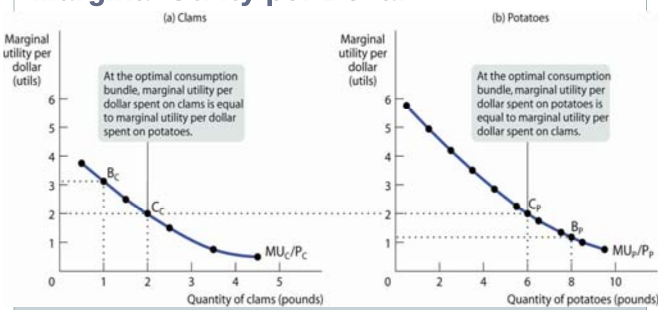
(a) Clams (price of clams = $4 per pound)

Quantity of clams (pounds)	Utility from clams (utils)	Marginal utility per pound of clams (utils)	Marginal utility per dollar (utils)
0	0		
1	15	15	3.75
2	25	10	2.50
3	31	6	1.50
4	34	3	0.75
5	36	2	0.50

(b) Potatoes (price of potatoes = $2 per pound)

Quantity of potatoes (pounds)	Utility from potatoes (utils)	Marginal utility per pound of potatoes (utils)	Marginal utility per dollar (utils)
0	0		
1	11.5	11.5	5.75
2	21.4	9.9	4.95
3	29.8	8.4	4.20
4	36.8	7.0	3.50
5	42.5	5.7	2.85
6	47.0	4.5	2.25
7	50.5	3.5	1.75
8	53.2	2.7	1.35
9	55.2	2.0	1.00
10	56.7	1.5	0.75

Marginal Utility per Dollar



If Sammy has in fact chosen his optimal consumption bundle, his marginal utility per dollar spent on clams and potatoes must be equal.

Optimal Consumption Rule

The **optimal consumption rule:**

when a consumer maximizes utility, the marginal utility per dollar spent must be the same for all goods and services in the consumption bundle.

$$MU_C/P_C = MU_P/P_P$$

DECISION MAKING PROCESS

Income = 9 baht

		$P_X = 2$			$P_Y = 1$
Units of X	MU_X	MU_X/P_X	Units of Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

Compare the Value of MU of 1st Unit of X & 1st Unit of Y

		$P_X = 2$			$P_Y = 1$
UNITS OF X	MU_X	MU_X/P_X	UNITS OF Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

Since 8 Utils/Baht > 5 Utils/Baht, The consumer buys ……………… :
Total Quantity: ……………………
TU:………………………
Paid: ………………………
Money Left:……………..….

Compare the Value of MU of 1st unit of X & 2nd unit of Y

		$P_X = 2$			$P_Y = 1$
UNITS OF X	MU_X	MU_X/P_X	UNITS OF Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

Since 7 Utils/Baht > 5 Utils/Baht, The consumer buys ……………….:
Total Quantity: ………………
TU: …………………………
Paid: …………………………..
Money Left: ………………….

Compare the Value of MU of 1st unit of X & 3rd unit of Y

		$P_X = 2$			$P_Y = 1$
UNITS OF X	MU_X	MU_X/P_X	UNITS OF Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

Since 6 Utils/Baht > 5 Utils/Baht, The consumer buys …………………..:
Total Quantity: ………………
TU: …………………………
Paid: ………………………….
Money Left: ………………….

Compare the Value of MU of 1st Unit of X & 4th Unit of Y

		$P_X = 2$			$P_Y = 1$
UNITS OF X	MU_X	MU_X/P_X	UNITS OF Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

Since 5 Utils/Baht = 5 Utils/Baht, The consumer buys …………………………..:
Total Quantity: ……………………………
TU: …………………………
Paid: …………………………..
Money Left: ………………….

Compare the Value of MU of 2nd Unit of X & 5th Unit of Y

		$P_X = 2$			$P_Y = 1$
UNITS OF X	MU_X	MU_X/P_X	UNITS OF Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

Since 4 Utils/Baht = 4 Utils/Baht, The consumer buys ………………………………….:
Total Quantity: ………………………………
TU: …………………………………………
Paid: ……………………………………….…
Money Left: …………………………………..

INFERIOR OPTIONS

Will the Consumer have The Maximum Utility by Consuming 3 Units of X (6 Baht) and 3 Units of Y (3 Baht) That Cost 9 Baht?

$P_X = 2$ **$P_Y = 1$**

UNITS OF X	MU_X	MU_X/P_X	UNITS OF Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

Total U Obtained by Consuming 3 Units of X:
………………………….
Total U Obtained by Consuming 3 Units of Y:
………………………….
Total U Obtained by Consuming 3 Units of X and 3 Units of Y:
………………………….
…………………………..
…………………………………………………………………………………………

Could the Consumer Consumes 3 Units of X & 6 Units of Y?

$P_X = 2$ **$P_Y = 1$**

UNITS OF X	MU_X	MU_X/P_X	UNITS OF Y	MU_Y	MU_Y/P_Y
1	10	5	1	8	8
2	8	4	2	7	7
3	6	3	3	6	6
4	4	2	4	5	5
5	3	1.5	5	4	4
6	2	1	6	3	3

The cost of 3 Units of X = ……………….. Baht
The Cost of 6 Units of Y = ……………….. Baht
Total Cost = …………………………

From Utility to the Demand Curve

The main reason for studying consumer behavior is to go behind the market demand curve—to understand how the downward slope of the market demand curve is explained by the utility-maximizing behavior of individual consumers.

Marginal Utility, the Substitution Effect, and the Law of Demand

- When the price of a good increases, an individual will normally consume less of that good and more of other goods
- When the price of a good decreases, an individual will normally consume more of that good and less of other goods
- This explains why the individual demand curve, which relates an individual's consumption of a good to the price of that good, normally slopes downward – that is, it obeys the law of demand

- This effect of a price change on that quantity consumed is always present. It is known as **the substitution effect**
- *The change in the quantity consumed as the consumer substitutes the good that has become relatively cheaper in place of the good that has become relatively more expensive*

The income effect

- The change in the quantity of a good consumed that results from a change in the overall purchasing power of the consumer due to a change in the price of that good
- A change in the price of a good effectively changes a consumer's income because it alters the consumer's purchasing power

- Normal goods
  - Goods for which demand decreases when income falls. So this effective reduction in income leads to a reduction in the quantity demanded and reinforces the substitution effect
- Inferior goods
  - Goods for which demand increases when income falls, the income and substitution effects work in opposite directions.

Source:

- Krugman, P. and Robin Wells (2008)