Consumer Behaviour is the study of individual customers, organizations, or groups' behaviour while selecting, purchasing, using, and disposing of the goods, ideas, and services so they can meet their wants and needs. In simple terms, consumer behaviour is the study of consumers' actions and reactions in the marketplace and the reason behind their actions.

Consumer

A consumer is a person who purchases goods and services for the satisfaction of needs and wants. A consumer is the end-user of the goods and services and cannot resell them. The choice and need of the consumer for a good and service have a great impact on various decisions of an organization.

Importance of Consumer

.A consumer creates demand for different products in the market. It means that the needs and wants of a consumer for different goods and services create its demand in the market and hence, the need to produce them.

.A consumer consumes not only goods, but also a variety of services. Hence, the consumers in a market enhance the diversification of different services. Examples of services are banking, health care, insurance, etc.

.A consumer also plays a crucial role in increasing demand for consumer goods. Consumer goods are of two types: durable and non-durable goods. Durable goods are those consumer goods that have a life span of more than three years, such as television, refrigerator, washing machine, etc. However, non-durable goods are those consumer goods that have a life span of less than three years or can be a single use goods such as drinks, snacks, fruits, etc.

Consumer Behaviour

The behaviour of a person is the way they act or behave in a certain situation. Every individual has different perspectives, opinions, views, wants, tastes and needs. Hence, consumer behaviour deals with the way consumers spend their income on different services and goods. For example, if a consumer has ₹2,000 and has different options to spend the money, like movies, clothes and food, there are different ways in which he can spend the money. He can either spend the whole amount on one option or distribute the amount among two or more options. The way in which the consumer uses his money will show his behaviour or consumer behaviour.

Utility

Utility is the want satisfying power of a consumer for a specific commodity. A consumer decides the demand for a good based on the utility he/ she derives from the consumption of that good. In simple terms, utility is the satisfaction gained by the consumer after the consumption of a specific good. Utility is subjective in nature, and hence, different individuals gain different levels of utility from the same good. The more a consumer needs a commodity after its consumption, the more will be the utility derived from that commodity. For example, a consumer who likes ice cream will derive more utility from its consumption than some other consumer who is not fond of ice cream.

Study of Consumer Behaviour

Cardinal Utility Approach

Under the cardinal utility approach, we assume that the utility level can be measured and expressed in numbers. For example, we can measure the utility of a commodity, let's say, chocolates, and say that a consumer gets 20 units of utility from chocolates.

Ordinal Utility Approach

Even though the cardinal utility approach is simple, it has a major drawback, as in real-life, we cannot measure their satisfaction level in numbers. However, we can rank our preferences amongst the alternatives by expressing which commodity gives less or more utility. For example, there are two commodities, apple and banana; the consumer consumes both commodities, and likes apples more than bananas. We can say that an apple provides the consumer with more utility than a banana.

Comparison between Cardinal and Ordinal Utility

Basis	Cardinal Utility	Ordinal Utility
Meaning	The measurement of utility or satisfaction derived by a consumer after consuming goods or services in numerical terms.	The measurement of utility or satisfaction derived by a consumer after consuming goods or services in qualitative terms.
Realistic	Cardinal utility is less realistic.	Ordinal utility is more realistic.
Approach	It is a quantitative approach.	It is a qualitative approach.
Measurement	Cardinal utility is measured in utils.	Ordinal utility is measured in ranks.
Analysis	Cardinal utility is measured by Marginal Utility Analysis.	Ordinal utility is measured by Indifference Curve Analysis.

Cardinal Utility

The two different measures of utility under cardinal utility are:

1. Total Utility

The total utility of a commodity's fixed quantity is the total satisfaction level derived by a consumer from the consumption of a given commodity. The total utility of a commodity depends on the quantity consumed by the consumer. For example, the total utility of a commodity, let's say, mango, is derived from consuming 10 units.

2. Marginal Utility

The marginal utility of a commodity is the change in its total utility because of the consumption of one additional unit of the commodity. For example, suppose 5 chocolates give a consumer 20 units of total utility, and 6 chocolates give him 25 units of utility. The consumption of one extra chocolate will provide him extra utility of 5 units. Therefore, the marginal utility of the consumer will be 5. Hence, the formula for determining the MU of a commodity is

$MU_n = TU_n – TU_{n-1}$

Where,

MU_n = Marginal utility from n^{th} unit

TU_n = Total utility from n units

TU_{n-1} = Total utility from n-1 units

n = Number of units of consumption

Law of diminishing marginal utility

The law of diminishing marginal utility states that as a consumer consumes more of a commodity, the marginal utility derived from every additional unit consumed will decrease. The law of demand is based on the law of diminishing marginal utility. It means that a consumer is ready to spend less money for more units of a product as the utility level for the commodity decreases with the increase in consumption.

Assumptions for the law of diminishing marginal utility are:

- There is continuous consumption of a commodity.
- The consumer is consuming only standard units of a commodity.
- The satisfaction level is measured in numerical or quantitative terms.
- The quality of a commodity does not change.
- The consumer consuming the commodities is rational.
- The income of the consumer and the price of the commodity are fixed.

Ordinal Utility

Indifference curve

An indifference curve is a graphical representation of two commodities giving the same level of satisfaction to a consumer. It means that every point of the indifference curve gives the same satisfaction level to the consumer. For example, the satisfaction level gained by Sam from consumption of 1 unit of apple and 14 units of mango is the same as the satisfaction gained by her from consumption of 2 units of apple and 8 units of mango.

Difference between Needs and Wants
:
What are Needs and Wants?

Human life is intricately woven with the interplay of needs and wants, forming the tapestry of our existence. Needs represent the fundamental requisites for survival and well-being, encompassing essential elements such as food, water, shelter, and clothing. These are universal constants that cut across cultural boundaries and stand as the bedrock of human existence. Addressing **Needs** is paramount, as neglecting them can pose threats to physical health and overall stability. On the other hand, **Wants** extend beyond the necessities of life, representing desires and preferences that enhance the quality of our existence.

Geeky Takeaways:

- Shaped by personal tastes, cultural influences, and societal trends, wants to encompass a diverse array of non-essential goods and services, reflecting the dynamic and subjective nature of human aspirations.
- Together, needs and wants create a nuanced understanding of what it means to lead a fulfilling life.
- It further focuses on balancing the essentials with the enriching elements that contribute to a life well-lived.

Characteristics of Needs and Wants

Characteristics of Needs

1. Essential: Needs are fundamental for survival and well-being. They address basic human requirements, such as food, water, shelter, and healthcare, without which individuals cannot sustain life.

2. Universal: Basic needs are common to all humans, transcending cultural, geographical, or social differences. Regardless of background, people share a common set of fundamental requirements.

3. Priority: Needs have a higher priority than wants. They must be fulfilled before addressing wants since they are crucial for sustaining life and ensuring a baseline level of health and safety.

4. Constant: Needs persist over time and are not easily influenced by external factors. The essential nature of needs remains consistent, providing a stable foundation for human existence.

Characteristics of Wants

1. Non-essential: Wants are desires that go beyond basic survival. Cultural, personal, and situational factors influence the diversity of wants, making them subjective and diverse.

2. Varied: Wants can vary significantly among individuals and societies. Cultural, personal, and situational factors influence the diversity of wants, making them subjective and diverse.

3. Influenced by Trends: Wants are often influenced by current trends, fashion, and societal norms. They can change rapidly based on external factors, reflecting the dynamic nature of human desires.

4. Subjective: The perception of wants is subjective and varies from person to person. What one individual considers a want may be a necessity for another, making wants highly individualized.

Types of Needs and Wants

Types of Needs

The types of Needs can be better understood with the help of Maslow's Hierarchy Need Theory:

1. Physiological Needs: These are the most basic needs for survival, including food, water, shelter, and clothing. Meeting physiological needs is essential for maintaining life and well-being.

2. Safety Needs: Safety needs involve protection from physical and emotional harm, stability, and security. This includes factors like personal safety, health, and financial security.

3. Social Needs: Human beings are social creatures, and social needs encompass relationships, love, and a sense of belonging within a community or family.

4. Esteem Needs: Esteem needs involve self-esteem, recognition, and the desire for respect from others. Fulfilling these needs contributes to a positive self-image and confidence.

5. Self-Actualization Needs: At the highest level of Maslow's Hierarchy, self-actualization needs focus on personal growth, realizing one's potential, and achieving personal aspirations.

Types of Wants

1. Luxury Wants: These desires involve high-end, non-essential items that go beyond basic comfort and are associated with luxury and prestige.

2. Recreational Wants: Recreational wants include desires for entertainment, travel, and leisure activities that contribute to enjoyment and relaxation.

3. Cultural Wants: Influenced by cultural values and societal norms, cultural wants encompass preferences shaped by the broader cultural context.

4. Trend-based Wants: Reflecting the influence of current trends, fashion, and lifestyle preferences, trend-based wants are dynamic and may change rapidly based on external factors.

Differences between Needs and Wants

Criteria	Needs	Wants
Essentiality	Essential for	Non-essential, enhancing quality of life.

Criteria	Needs	Wants
	survival and well-being.	
Universal Nature	Common to all humans.	Varied, influenced by culture and trends.
Priority	Higher priority; must be fulfilled first.	Lower priority; addressed after needs.
Influence	Less influenced by external factors.	More susceptible to trends and culture.
Nature	Fundamental and constant.	Dynamic and subject to change.
Examples	Food, water, shelter, clothing.	Luxury items, entertainment, travel.
Stability	Critical for stability and basic functionality.	Enhance stability but not essential for basic function.
Impact on Health	Neglecting needs can lead to health issues.	Neglecting wants has minimal impact on health.
Satisfaction	Satisfaction of needs provides a foundation for a stable life.	Fulfillment of wants adds to the quality of life.
Cultural Influence	Relatively unaffected by cultural shifts.	Heavily influenced by cultural preferences.
Subjectivity	Objective and consistent across populations.	Subjective, varying among individuals.
Trends	Largely immune to changing societal trends.	Often shaped by contemporary trends and influences.
Adaptability	Needs remain constant over	Wants evolve with changing preferences and

Criteria	Needs	Wants
	time.	aspirations.
Longevity	Enduring and timeless.	Subject to change based on evolving desires.
Necessity	Necessary for basic functioning and survival.	Not necessary for basic survival but contributes to a more enjoyable life.

Needs, Wants and Demands in Marketing

In the realm of marketing, understanding the concepts of needs, wants, and demands is essential for developing effective strategies to meet consumer requirements and create value.

1. Needs in Marketing: Addressing needs is a fundamental aspect of marketing. Products and services that fulfill basic human necessities form the core of many marketing endeavors.

For example, a company producing affordable and nutritious food products is directly catering to the need for sustenance. Marketing campaigns for healthcare services, housing solutions, and everyday essentials often emphasize how their offerings satisfy fundamental human needs. Understanding and tapping into these needs allows marketers to create a strong value proposition, establishing a connection with consumers based on providing essential solutions to their everyday challenges.

2. Wants in Marketing: Wants to play a crucial role in shaping consumer preferences and influencing purchasing decisions. Successful marketing often involves creating a desire for products that go beyond necessities. Luxury brands, for instance, excel in marketing products that fulfill consumers' wants for prestige, exclusivity, and superior quality. Through effective advertising and branding, marketers can elevate a product's status, transforming it from a mere want to a coveted possession.

For example, a high-end fashion brand may create a marketing campaign that not only showcases the functionality of its clothing but also highlights the lifestyle and status associated with owning and wearing its products.

3. Demands in Marketing: Demands in marketing represent the willingness and ability of consumers to purchase a particular product or service. This concept encompasses both needs and wants, indicating the level of desire backed by the financial means to acquire the offering. Effective marketing not only generates wants but also stimulates demands by showcasing the unique value proposition of a product or service.

For example, a tech company may create demand for its latest smartphone by highlighting advanced features, innovative technology, and the overall experience it provides, making consumers eager to own the product.

Need vs. Want vs. Demand in Marketing:

Basic	Needs	Wants	Demands

Basic	Needs	Wants	Demands
Definition	Essential requirements for survival.	Desires that enhance the quality of life.	Willingness and ability to purchase a product.
Marketing Focus	Basic, fundamental products and services.	Diverse, non-essential goods and experiences.	Creating desire and stimulating purchasing.
Examples in Marketing	Food, healthcare, basic clothing.	Luxury goods, entertainment, travel.	Innovative technology, and unique value offerings.
Priority in Marketing	High priority; often addresses first.	Lower priority; addressed after needs.	Generated through effective marketing efforts.
Motivation	Addresses fundamental human requirements.	Enhances the overall experience and satisfaction.	Driven by the desire to possess a specific product.
Customer Value	Essential for basic functionality and survival.	Contributes to a more enjoyable and fulfilling life.	Reflects the perceived value of a product or service.
Market Dynamics	Stable and relatively consistent.	Subject to changing trends and preferences.	Influenced by market dynamics, competition, and consumer behavior.
Market Strategy	Emphasizes reliability and necessity.	Focuses on differentiation and emotional appeal.	Requires strategic promotion to create awareness and interest.

Needs and Wants in Economics

1. Economic Decision-Making: In economics, needs and wants influence individual and collective decision-making. Basic needs often drive fundamental economic activities, as individuals allocate resources to fulfill essential requirements. Wants, however, contribute to the complexity of economic decisions, as they involve choices influenced by personal preferences, societal trends, and cultural influences. Understanding the interplay between needs and wants is crucial for economists when analyzing consumption patterns and resource allocation.

2. Consumer Behavior and Demand: Consumer behavior, a key focus in economics, is shaped by the dynamics of needs and wants. Basic needs drive demand for essential goods and services, while wants contribute to the diversity of consumer choices. The study of demand in economics involves analyzing how desires for certain products or services translate into actual consumption patterns. Market demand is a reflection of collective wants, and economists utilize this data to assess market trends and make predictions about future economic activities.

3. Resource Allocation: Economic systems grapple with the challenge of resource allocation, balancing the production of goods and services to meet both needs and wants. Basic needs often receive priority in resource allocation, as societies aim to ensure the well-being of their citizens. However, wants also influence resource distribution, as industries catering to non-essential goods and services contribute to economic growth and employment opportunities.

4. Market Dynamics: The forces of supply and demand, central to economic principles, are influenced by the interplay of needs and wants. Scarcity, a fundamental economic concept, arises when resources are limited relative to the desires of individuals. Market dynamics are shaped by how needs and wants are met within this context. Price fluctuations, competition, and innovation are all elements influenced by the balance between fulfilling basic needs and satisfying diverse wants in the marketplace.

Frequently Asked Questions (FAQs)

1. How do needs and wants differ in terms of consumer decision-making?

Answer:

Needs often drive immediate and essential purchasing decisions, while wants contribute to more discretionary and lifestyle-oriented choices. Understanding these differences is crucial for marketers to tailor their strategies effectively.

2. Can a product fulfill both a need and a want simultaneously?

Answer:

Yes, some products can serve dual purposes, addressing basic needs while also incorporating features that fulfill consumer wants. For instance, a smartphone not only satisfies communication needs but also caters to the want for advanced technology and stylish design.

3. How do economic fluctuations impact consumers' needs and wants?

Answer:

Economic fluctuations can influence consumer priorities. During economic downturns, individuals may prioritize essential needs over discretionary wants, leading to shifts in purchasing behavior and overall market demand.

4. Do cultural influences play a role in shaping both needs and wants?

Answer:

Cultural influences play a role in both shaping needs and wants. While basic needs are often more universal, cultural factors significantly influence the specific of how those needs are met and also shape diverse wants bases on societal norms and values.

5. Can wantcontributes ever become needs for an individual?

Answer:

Yes, individual perspectives can evolve, and want was once considered a want may become a perceived need based on changing circumstances personal experiences, on shifting priorities. This subjective nature highlights the dynamic aspect of human desires.

Utility Analysis : Total Utility and Marginal Utility

What is Utility Analysis?

Consumers are the ones who make the majority of consumption decisions. A consumer is someone who buys goods and services to fulfil demands. He makes choices about the kinds of items to be bought to fulfil his desires. *The primary goal is to maximise satisfaction from the goods and services he purchases with his income.* To achieve the highest level of satisfaction, a consumer must follow certain rules or principles since resources are limited in nature in comparison to limitless demands. The two basic approaches for studying customer behaviour are the Cardinal Utility approach and Ordinal Utility Approach.

What is Cardinal Utility Approach?

People consume different goods and services to maximise their level of satisfaction. To achieve this, it is required to ascertain the level of satisfaction attained from a certain commodity. The Cardinal Utility Approach employs the concept of "**Utility**" to determine the level of satisfaction.

What is Utility?

The characteristic of a good or service that allows it to fulfil the needs of consumers is comprehended as its “utility.” It is the fulfilment—actual or anticipated—that results from the consumption of a good or service. Utility is a relative concept, this means that it differs from individual to individual, from location to location, and from period to period. A utility is its ability to satisfy a need.

Simply put, **Utility** is the want satisfying power of a commodity.

It is considered to be measured in terms of cardinal numbers such as 1, 2, 3, 4, and so on. These are known as utils or units of utility. Thus, four utils are more significant than three utils, three utils are more significant than two utils, and so on.

How to measure Utility?

According to classical economics, utility can be measured similarly to how one would measure one’s height or weight. According to economists, the utility can be quantified in cardinal terms. It is possible to quantify the utility that an individual obtains through the consumption of commodities and services. However, there was no standardised method of calculating utility; so the economists came up with a hypothetical unit of measurement called **Util**.

Utils are imaginary and psychological units that are used to measure satisfaction obtained from the consumption of a certain quantity of a commodity.

Let’s say you just finished a cake and a bar of chocolate. You decide to label 15 utils as cake-derived utils. How many utils should be assigned to the chocolate now? Less than 15 utils would be given to chocolate if someone didn’t enjoy it as much. On the other hand, if one prefers chocolate more, then more than 15 utils will be assigned.

One more way to measure Utility

As utils vary from individual to individual, it cannot be taken as a standard unit for measurement. Therefore, various economists suggested that utility should be measured in monetary terms. Simply put, they suggested that utility can be measured in terms of price or money a consumer is willing to pay.

In the above example, let us assume that 1 util is equal to ₹1. Now, the utility derived from the consumption of cake will be ₹15, which is known as the value of utility in terms of money. The major advantage of using the monetary value of utility instead of utils is that monetary value allows easy comparison between the price paid for the commodity and the utility derived from it.

1. Total Utility

Total Utility determines the overall satisfaction obtained after consuming every single unit of that commodity. It is the total utility derived from the consumption of all units of a commodity.

For example, if 2 units of a commodity are consumed and the 1st unit provides 20 utils of satisfaction and the 2nd unit provides 14 utils of satisfaction, then the total utility will be 20+ 14 utils = 34 utils. If 3rd unit of a commodity is consumed and it provides 10 utils of satisfaction, then the total utility will be 20+14+10 = 44 utils.

Total Utility can be calculated as:

$$TU_n = U_1 + U_2 + U_3 + \ldots\ldots\ldots\ldots\ldots\ldots + U_n$$

Where,

TU_n = Total utility from n units of a given commodity

$U_1, U_2, U_3, \ldots\ldots\ldots U_n$ = Utility derived from 1st, 2nd, 3rd, $\ldots\ldots\ldots\ldots n^{th}$ unit

n = Number of units consumed

2. Marginal Utility

Marginal Utility is the utility obtained from the last unit of a product or service. It refers to the additional utility on account of the consumption of an additional unit of a commodity.

In the above example, when 3 units of a commodity provide the satisfaction of 44 utils, and 2 units of a commodity provide satisfaction of 34 utils, then the marginal utility will be 44 – 34 = 10 utils. The additional 10 utils derived from the 3rd unit are marginal utility.

MU can be calculated as:

$$MU_n = TU_n - TU_{n-1}$$

Where,

MU_n = Marginal utility from n units of a given commodity

TU_n = Total utility from n units of a given commodity

TU_{n-1} = Total utility from n-1 units

n = Number of units consumed

One more way to calculate MU

MU is the change in TU caused by the consumption of one extra unit. MU can also be calculated when the change in units consumed is more than one.

This results in another formula for calculating TU.

$$TU_n = MU_1 + MU_2 + MU_3 + \ldots\ldots\ldots\ldots\ldots\ldots + MU_n, \text{ or}$$

$$TU = \sum MU$$

The below table illustrates the estimation of MU and TU.

Consumption of Commodity X (units)	**TU_x**	
1	50	
2	90	
3	120	

Consumption of Commodity X (units)	**TU_x**	
4	120	
5	100	-

The above table shows that:

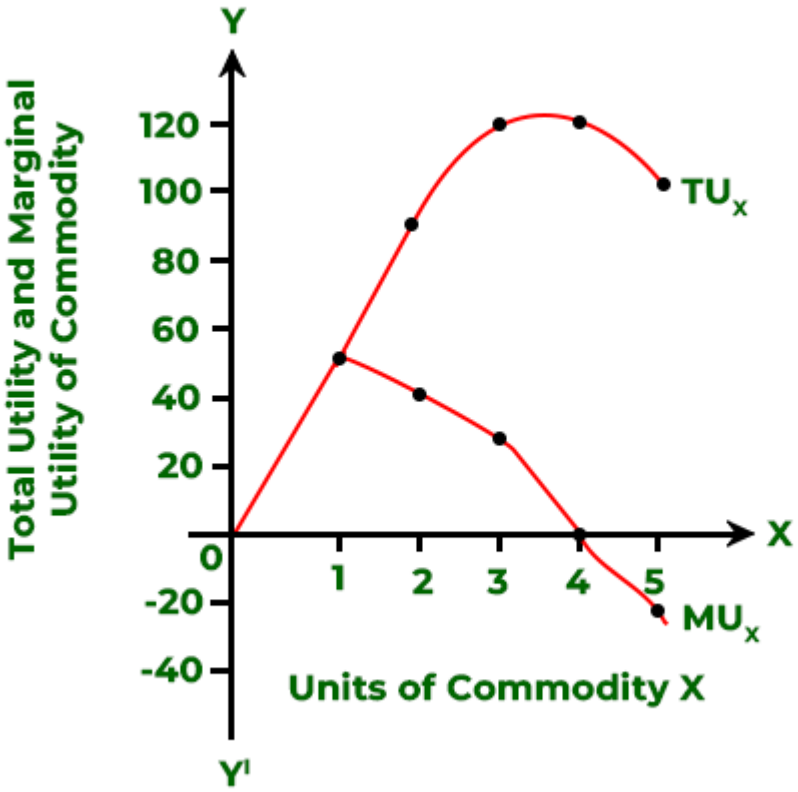
(i) $MU_n = TU_n – TU_{n-1}$

Marginal utility of an nth unit of a commodity =Total utility from n units – Total utility from (n-1) units

(ii) $TU = \Sigma MU$

= 50 + 40 + 30 + 0 + (-20)

= 100

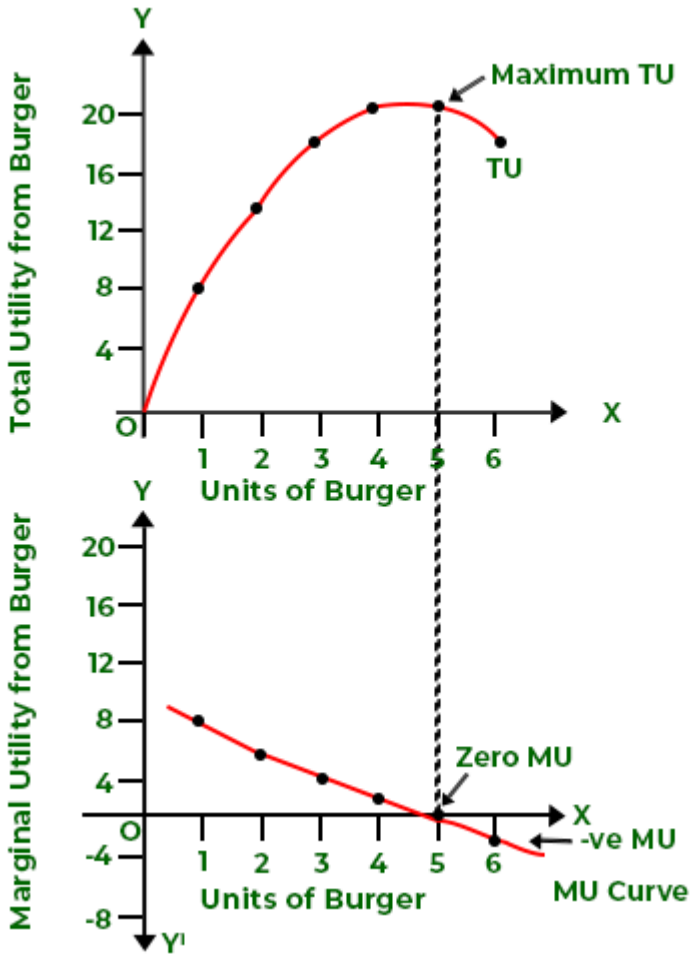


Relationship between TU and MU

The relationship between TU and MU can be explained with the help of the following schedule and diagram.

Burger (Units)	Total Utility (TU)	Marginal Utility (MU)

Burger (Units)	Total Utility (TU)	Marginal Utility (MU)
0	0	–
1	8	8 – 0 = 8
2	14	14 – 8 = 6
3	18	18 – 14 = 4
4	20	20 – 18 = 2
5	20	20 – 20 = 0
6	18	18 – 20 = -2



Observation:

1. TU increases with an increase in the consumption of a commodity and as long as MU is positive. In this case, TU increases till 4th burger. Till 4 burgers, TU increases at a diminishing rate as MU from each successive burger diminishes.

2. When TU is at its maximum point, MU becomes zero; i.e., when the 5th burger is consumed. This point is known as the **point of satiety.**

3. Ultimately, when the consumption of a commodity is increased beyond the point of satiety, TU starts falling as MU becomes negative.

Basic Limitation of Utility Analysis

The fundamental problem in utility analysis is that it makes the incorrect assumption that utility can only be stated in cardinal numbers. it implies that utils like 1, 2, and 3 can never accurately represent usefulness. When two things are consumed concurrently, satisfaction can be compared at best. It is challenging to assess in figures. Due to this drawback, utility analysis is shown to have minimal application in describing consumer equilibrium.

What is Ordinal Utility Approach?

This approach states that utility can not be expressed in cardinal numbers like 1,2,3, and 4, rather it can only be ranked as high or low. The concept of cardinal utility was discarded by modern economists. According to them, utility is a psychological experience that cannot be quantified in absolute terms. They believe that consumers can order different combinations of goods and services to their preferences.

For example, if a consumer consumes two goods like Tea and Coffee, then he can say that:

1stHe prefers tea over coffee;

2ndHe prefers coffee over tea;

3rdBoth are equally preferable and both of them provide the same level of satisfaction. This indicates that he is indifferent between tea and coffee.

Law of Diminishing Marginal Utility (DMU) : Meaning, Assumptions & Example

What is Diminishing Marginal Utility (DMU)?

According to the **Law of Diminishing Marginal Utility (DMU)**, with the consumption of more and more units of a commodity, the utility obtained from each successive unit decreases. Most consumers spread their income among different varieties of goods when making choices. People prefer a variety of goods as consuming more and more of any one good diminishes the marginal satisfaction obtained from continued use of that good. This law explains a significant relationship between utility and the quantity of a commodity that is consumed. This can be better understood by using the example mentioned below.

Suppose your mother offers you food after you just got home from work. The first chapatti will provide you with great satisfaction. With the second chapatti, you will feel less satisfied. As you consume more, you will reach a point where you will need another chapatti where the marginal utility will be zero. After that, if you are forced to eat even one more chapatti, it will lead to disutility. The Law of Diminishing Marginal Utility causes such a decrease in satisfaction with successive unit consumption.

The DMU law is universally applicable, and it applies to all products and services. It was initially proposed by a German economist, **H.H. Gossen**. Thus, it is also known as **Gossen's First Law of Consumption**.

Assumptions of Diminishing Marginal Utility

The Law of Diminishing Marginal Utility functions under specific conditions. They are known by economists as “assumptions of law.” These are listed below:

1. Cardinal Measurement of Utility: It is assumed that utility can be measured and that a consumer can express his satisfaction using numbers, such as 1, 2, etc.

2. Monetary Measurement of Utility: The law of diminishing marginal utility assumes that utility can be measured in monetary terms.

3. Consumption of Reasonable Quantity: It is assumed that the commodity is consumed in a reasonable qua ntity. **For instance,** rather than comparing the MU of spoonfuls, one should compare the MU of glasses of juice. If a thirsty person is given juice in a spoon, then each extra spoon will provide him with increased utility. Therefore, for the law to be true, proper quantity of the good is to be consumed.

4. Continuous Consumption: It is assumed that consumption is a continuous process. **For instance,** if you have one cup of milk in the morning and another in the evening, then the second cup of milk can provide equal or higher satisfaction when compared to the first one.

5. No change in Quality: It is expected that the commodity consumed is of constant quality. If the first cup of milk has no added sugar and chocolate, the second cup of milk with added sugar and chocolate can satisfy you more than the first.

6. Rational Consumer: The rational consumer measures, compute, and evaluate the utility of various commodities to maximise overall satisfaction.

7. Independent Utilities: All of the commodities a consumer consumes are assumed to be independent. Hence, there is no relationship between the MU of one commodity and the MU of another. Furthermore, it is assumed that the utility of one person is unaffected by the utility of another person.

8. Marginal Utility of Money remains Constant:

A consumer has less money to spend on other commodities after paying for the commodity. This process increases the MU of money for the consumer and makes the remaining cash dearer to them. However, such an increase in MU is ignored. It is assumed that the MU of money is constant since the MU of a commodity must be measured in monetary terms.

9. Fixed Income and Prices: It is assumed that the consumer's income and the price of the goods they want to purchase remain constant.

10. Perfect Knowledge: It is assumed that the consumer has knowledge of the different goods on which his income can be spent and the utility that he is likely to derive from such consumption. It indicates that the customer has perfect knowledge of all of the various choices available to him.

Example of Diminishing Marginal Utility

The concept of diminishing marginal utility can be better understood with the help of the following schedule and diagram:

Law of Diminishing Marginal Utility

Units of Apple	Total Utility (TU)	Marginal Utility (MU)
1	25	25
2	42	17
3	54	12
4	60	6
5	60	0 (Point of Satiety)
6	55	-5

In the above diagram, the units of apples are displayed on the X-axis and the MU on the Y-axis. Points A, B, C, D, and E reflect the MU from each successive unit.

It can be observed as the consumption of apples rises, the rectangles (which represent each level of satisfaction) get smaller and smaller. When consumption is increased from first to second and then third, MU decreases from 25 to 17 and then to 12 utils. The fifth apple is the **Point of Satiety** and has no utility (MU= 0). When the sixth apple is consumed, MU turns negative. The downward-sloping MU curve indicates that the MU of successive units is decreasing.

Consumer’s Equilibrium in case of Single and Two Commodity

What is Consumer’s Equilibrium?

The term *equilibrium* is used frequently in economic analysis. It is a state of rest or a position of no change, which under a situation provides the maximum gain. A consumer is said to be in equilibrium when he has derived maximum satisfaction and does not want to change his consumption level. Hence, **Consumer’s Equilibrium** is a situation in which a consumer has maximum satisfaction with limited income and does not tend to change his existing way of expenditure.

As a consumer has to pay for each unit of commodity, he cannot purchase or consume unlimited quantities. Besides, according to the Law of Diminishing Marginal Utility, as the consumer consumes an additional unit of a commodity, the utility derived from the same decreases. Also, by purchasing more units of a commodity, the income of the consumer decreases. Therefore, the aim of a rational consumer is to balance his expenditure in a way that he gets maximum satisfaction by spending a minimum amount of income, and when the consumer successfully accomplishes his aim, he is said to be in equilibrium.

Two different situations in which Consumer’s Equilibrium can be studied are:

- When a consumer spends his entire income on a Single Commodity
- When a consumer spends his entire income on Two Commodities

- Consumer's Equilibrium in Single Commodity Case
- Consumer's Equilibrium in Two Commodities Case

Consumer's Equilibrium in Single Commodity Case

Consumer's Equilibrium in the case of a single commodity can be explained with the help of the Law of Diminishing Marginal Utility. Hence, to study the case of a single commodity, all the assumptions of the Law of DMU are considered in this study. A consumer purchasing a single commodity will be at equilibrium when he buys the commodity in such a quantity that gives him maximum satisfaction. Besides, the two factors which affect the number of units of the given commodity to be consumed are the *Price of the given commodity* and the *Marginal Utility from each successive unit.* In order to determine the equilibrium point, the consumer compares the price of the given commodity with the satisfaction level derived from it (utility). Being a rational consumer, he will be at an equilibrium level when the price paid for the commodity is equal to marginal utility.

Now, we know that Marginal Utility is measured in utils and the price is expressed in rupees; therefore, to determine the equilibrium level it is essential to express MU in terms of money, as:

Formula

$$\textit{Marginal Utility in terms of Money} = \textit{Marginal Utility of one rupee } (MU_M) \textit{Marginal Utility in Utils}$$

Marginal Utility of one rupee is the extra utility obtained when an additional rupee is spent on other goods.

Besides, utility differs from one person to another as it is a subjective concept. Under the single commodity case, it is assumed that a consumer defines the Marginal Utility of one rupee himself, in terms of satisfaction from the given bundle of goods.

Equilibrium Condition under Single Commodity

A consumer, when consuming a single commodity (say x) will be at equilibrium when: Marginal Utility (MU_x) is equal to Price (P_x) paid for the commodity.

$$\mathbf{MU_x = P_x}$$

If $MU_x > P_x$, then the consumer will not be at equilibrium and he continues to purchase the commodity as the benefit gained from the consumption is more than the cost of the commodity. As the consumer buys more, Marginal Utility falls because of the Law of DMU, and when it becomes equal to the price, the consumer gets maximum satisfaction and is said to be in equilibrium.

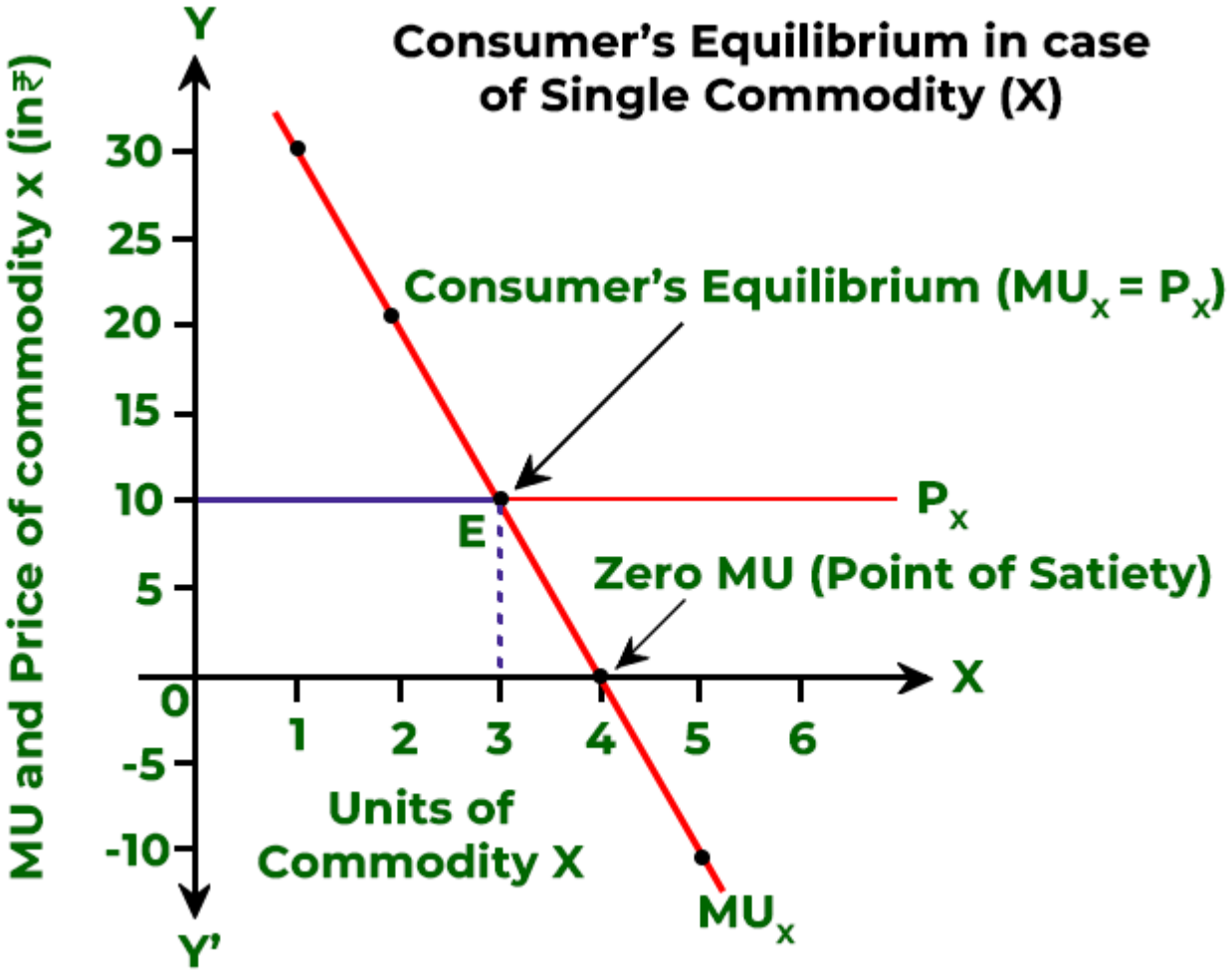
Similarly, if $MU_x < P_x$, then also the consumer will not be at equilibrium and he will have to reduce the consumption of the commodity in order to increase the satisfaction level, till MU becomes equal to the price.

For example:

Let's assume, a consumer wants to buy a good (say x), of price ₹10 per unit and the marginal utility derived from each successive unit (in utils and in ₹) is as follows (let's assume that 1 util/MU_M = ₹1):

Units of x	Price (P_x) (₹)	Marginal Utility (Utils)	Marginal Utility in ₹ (MU_x) 1 util = ₹1
1	10	30	30/1 = 30
2	10	20	20/1 = 20
3	**10**	**10**	**10/1 = 10**
4	10	0	0/1 = 0
5	10	-10	-10/1 = -10

This result can be shown with the help of a diagram.



In the above graph, the slope of the curve is going downward, which indicates that the marginal utility falls when an additional commodity of x is consumed (because of the Law of DMU). Also, the Price (P_x) is a straight horizontal line as the price of the commodity is fixed at ₹10 per unit.

With the help of the above schedule and graph, it can be said that the consumer will be at equilibrium at point E, when he consumes 3 units of commodity x because at that point $MU_x = P_x$.

The consumer will not consume 4 units of the commodity x because the MU of ₹0 is less than the price paid for x; i.e., ₹10. Similarly, he will not consume 2 units of the commodity x because the MU of ₹20 is more than the price paid for x; i.e., ₹10.

Hence, in conclusion, it can be said that a consumer consuming a single commodity (say x) will be at equilibrium when the Marginal Utility from the commodity (MU_x) is equal to the price paid for the commodity (P_x).

The equilibrium condition in the case of a single commodity can be expressed as:

$$MU_M MU_x = P_x$$

$$P_x MU_x = MU_M$$

Consumer's Equilibrium in Two Commodities Case

The Law of Diminishing Marginal Utility is applicable only in the case of either one commodity or single use of a commodity. However, in reality, consumers consume more than one commodity; therefore, in those cases, the Law of Equi-Marginal Utility is used as it helps in the optimum allocation of the consumer's income.

Law of Equi-Marginal Utility also known as the Law of Substitution, Law of Maximum Satisfaction, and Gossen's Second Law is based on the Law of DMU; therefore, all of its assumptions will apply to the Law of Equi-Marginal Utility also. The **Law of Equi-Marginal Utility,** states that a consumer gets maximum satisfaction, when ratios of MU of two commodities and their respective prices are equal and MU falls as consumption increases.

Let's take an example to understand this concept. Suppose, there are two commodities x and y upon which the consumer wants to allocate his income to attain the equilibrium position. The consumer will be at equilibrium when the MU of commodities x and y will be equal to their respective prices.

Two necessary conditions to attain Consumer's Equilibrium in Two Commodities Case

1. Ratio of Marginal Utility to Price is the same in the case of both goods (x and y):

We already know that a consumer consuming a single commodity (say x) will be at equilibrium when = $P_xMU_x=MU_M$ .....(1)

Similarly, a consumer consuming another commodity (say y) will be at equilibrium when = $P_yMU_y=MU_M$ .....(2)

By Equating (1) and (2), we get = $P_xMU_xP_yMU_y=MU_M$

As we assume that the Marginal Utility of Money (MU_M) is constant, the above equilibrium condition can be restated as:

= $P_xMU_x=P_yMU_y$, or = $MU_yMU_x=P_yP_x$

When $P_x = P_y$ then the equilibrium condition can be written as $MU_x = MU_y$.

2. MU falls as consumption increases:

Another condition required for attaining consumer's equilibrium in two commodities cases is that the MU of a commodity must fall as more of it is consumed by the consumer. If the MU of a commodity does not fall with an increase in its consumption, then the consumer will continue to buy that one commodity only, which does not happen in reality, and the consumer will never reach at the equilibrium position.

Finally, it can be said that a consumer consuming two commodities will be at equilibrium when he spends his income in a way that the ratios of Marginal Utilities of two commodities and their respective prices are equal, and as the consumption increases MU falls.

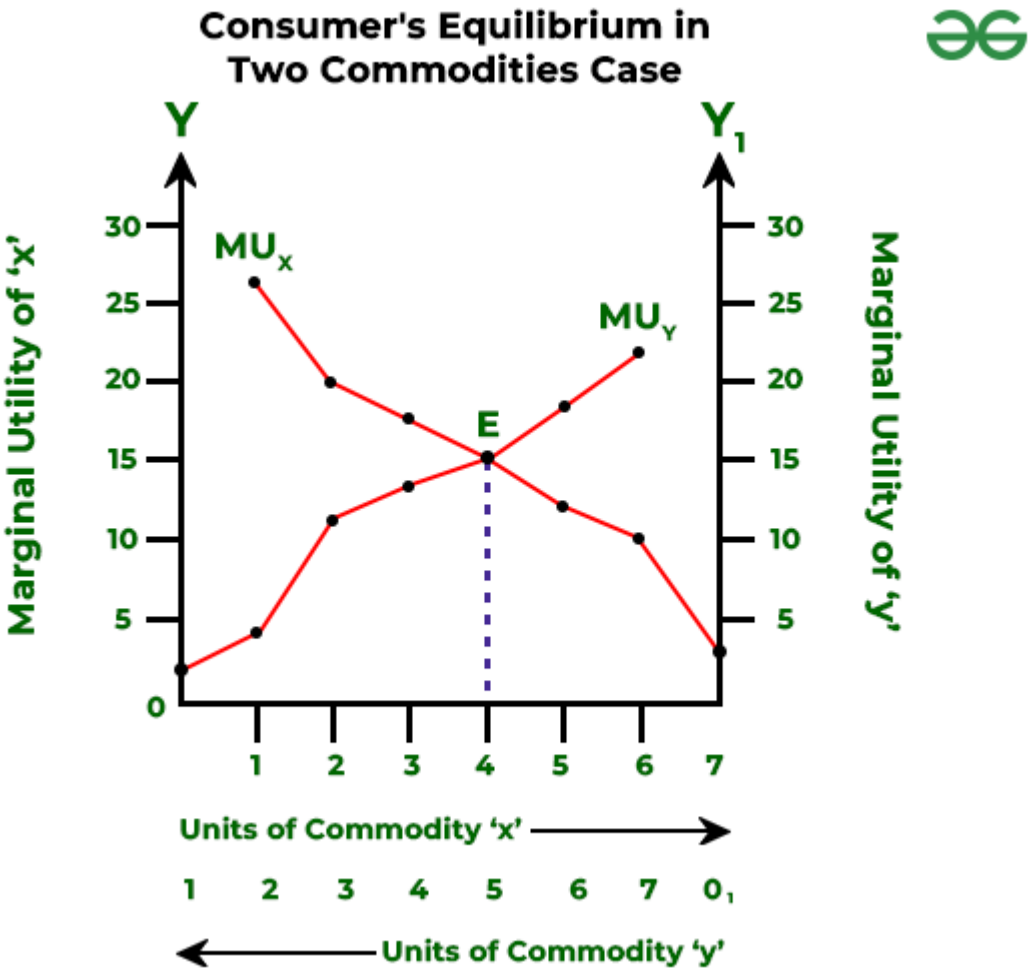
When P_xMU_x is not equal to P_yMU_y

- If > $P_xMU_x > P_yMU_y$, it means that the consumer is getting more Marginal Utility from commodity x as compared to commodity y. Therefore, the consumer will purchase more of x and less of y, resulting in a fall in MU_x and increase in MU_y. The consumer will continue to purchase more of x till, = $P_xMU_x = P_yMU_y$
- If < $P_xMU_x < P_yMU_y$, it means that the consumer is getting more Marginal Utility from commodity y as compared to commodity x. Therefore, the consumer will purchase more of y and less of x, resulting in a fall in MUy and increase in MUx. The consumer will continue to purchase more of y till = $P_xMU_x = P_yMU_y$

For example:

Let us assume that the total money income of a consumer is ₹7, which he wants to spend on commodities x and y. The price of each of these commodities is ₹1 per unit. Hence, the consumer can purchase maximum 7 units of commodity x, or 7 units of commodity y. The marginal utility derived by the consumer from different units of x and y are:

Units	MU of Commodity x (in utils)	MU of commodity y (in utils)
1	26	22
2	20	18
3	16	15
4	15	13
5	12	11
6	10	4
7	4	2



In the above graph, MU for commodity x is represented on OY-axis, and MU from commodity y is represented on O_1Y_1-axis. Besides, MU_x and MU_y are the Marginal Utility curves for commodities x and y, respectively.

The above table and graph clearly show that the consumer will spend the first rupee on commodity x, which will provide him 26 utils of utility and will spend the second rupee on commodity y which will provide him 22 utils of utility. In order to reach the position of equilibrium, the consumer should buy that combination of goods x and y, when the MU of the last rupee spent on each commodity (x and y) is the same and MU *falls as consumption increases.*

Both these conditions meet at point E when the consumer purchases 4 units of commodity x and 3 units of commodity y.

Now, the consumer attains equal marginal utility while consuming 7 units of commodity x and 6 units of commodity y; but the equilibrium will not be reached at this combination because the total satisfaction obtained from this combination is 52 utils [(7×4)+(6×4)]; however, total satisfaction obtained from combination at point E is 105 utils [(15×4)+(15×3)]. It means that if the consumer spends his income on any other combination other than 4 units of commodity x and 3 units of commodity y, the total satisfaction will be less than 105 utils.

Indifference Curve : Meaning, Assumptions & Properties

What is Indifference Curve ?

A curve or a graphical representation of the combination of different goods providing the same satisfaction level to the consumer is known as **Indifference Curve.** One cannot put a numerical value on the level of satisfaction gained from the consumption of goods. However, they can tell their preference between two goods, i.e., which good gives them more or less satisfaction. This satisfaction level is depicted through an indifference curve.

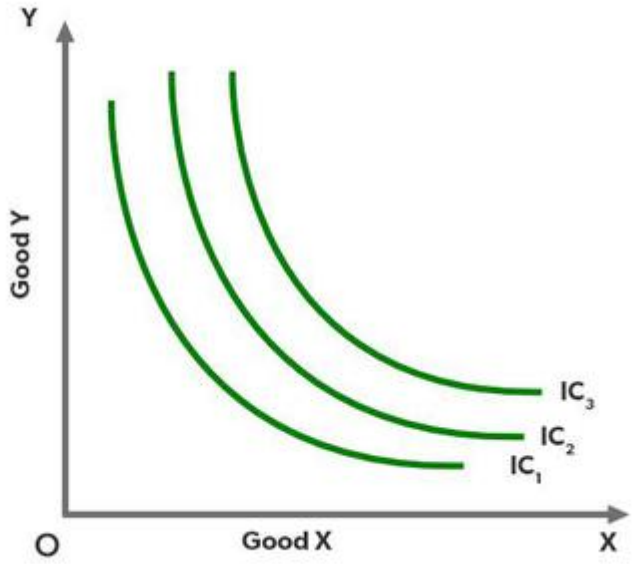
As all the combinations provide the consumer with an equal level of satisfaction, they prefer the goods equally. In other words, at any point of the indifference curve gives the same satisfaction level to the consumer. The same satisfaction level gained by the different combinations of two goods makes the consumer indifferent; hence, the name indifference curve. Because of this reason, an individual can use the indifference curve to depict the demand pattern and preferences of a consumer for a different set of commodities.

What is Indifference Curve Analysis?

A process of analyzing a simple two-dimensional graph representing two goods, one on the x-axis and the other on the y-axis is known as an **Indifference Curve Analysis.** If the graph of the combination of goods is on the line or curve, it means that the consumer gains the same satisfaction level or utility from the goods and thus, does not have any preference for the goods. **For example,** a child may gain the same satisfaction level from one ice cream and two chocolates, or three ice creams and one chocolate.

What is Indifference Map?

When more than one curve is represented on a graph showing a different combinations of two different goods on each curve, it is known as an **Indifference Map.** Each indifference curve on that graph shows one satisfaction level all along the curve. In other words, the representation of consumer preferences by a number of indifference curves is known as an indifference map. An indifference map represents every possible indifference curve that the consumer has, which helps in ranking their preferences. Also, the combination of goods on the higher indifference curve gives a higher satisfaction level to the consumer. Therefore, the highest of the indifference curves of an indifference map is preferred by a consumer.



Here, IC_1, IC_2 and IC_3 are three different Indifference Curves, and the complete graph is known as Indifference Map. Each curve has its own level of satisfaction. However, at any point on each of the curves gives the same level of satisfaction to the consumer. Also, the higher the indifference curve, the higher the satisfaction level (for example, $IC_3 > IC_2$).

What is Indifference Schedule?

A table or a schedule that shows different combinations of two goods giving the same level of satisfaction to the consumer is known as an **Indifference Schedule.** An indifference schedule is used to plot the different combinations of two goods on a graph for the formation of an indifference curve.

What is Indifference Set?

All points or bundles on an indifference curve that gives the same level of satisfaction to the consumer are known as **Indifference Set.** In simpler terms, suppose you have choices between different combinations of two things, like coffee and cookies. An indifference set would group together all the combinations that you find equally satisfying. For example, you might be equally happy with 2 coffees and 3 cookies, 1 coffee and 5 cookies, or even 4 coffees and 1 cookie. All these combinations offer you the same level of enjoyment, hence they belong to the same indifference set.

Basic Assumptions of an Indifference Curve Analysis

- The first assumption of an indifference curve analysis is that utility is ordinal. It means that the utility gained from the consumption of a good cannot be measured in cardinal numbers like 1, 2, 3, etc. It is, therefore, measured in ordinal numbers like 1st, 2nd, 3rd, etc. With cardinal numbers, one can easily compare the different levels of satisfaction by ranking the preferences.
- The consumer consuming the two goods is assumed to be rational. In other words, the basic motive of the consumer is to maximize his/her satisfaction level through the consumption of two goods.
- There are only two goods purchased and consumed by a consumer. It is because a graph has only two axes, and the representation of two goods will be easy.
- The consumer is fully aware and has complete knowledge about the price of both goods in the market.
- The price of both the goods is already given.
- The taste, income and habits of a consumer remain the same all the time.

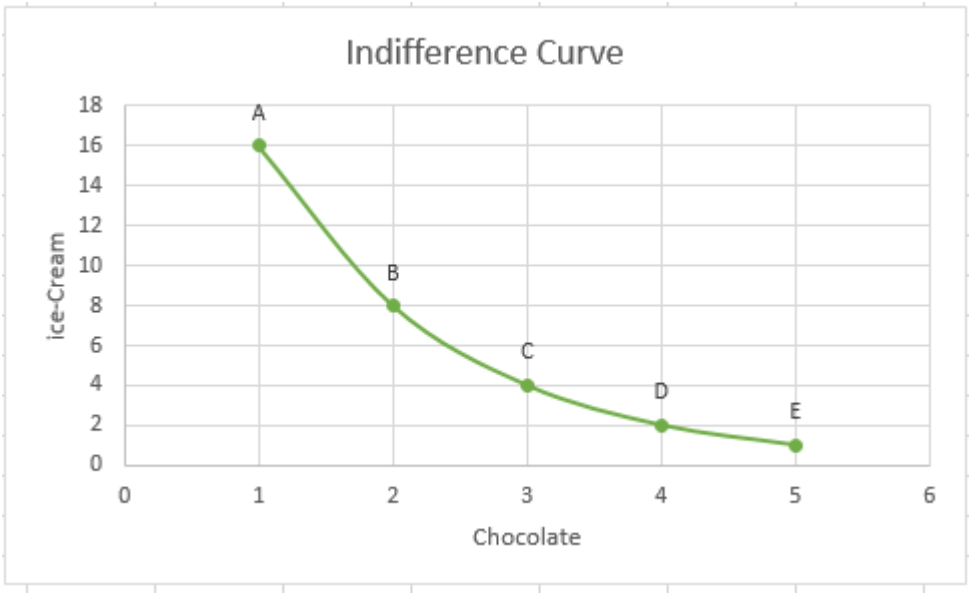
- The preferences of a consumer are transitive. It means that if a consumer prefers Good X over Good Y and Good Y over Good Z, then he/she prefers Good X over Good Z.

Example:

Nisha is consuming two goods Chocolate and Ice-Cream, and is willing to consume different combinations of these goods to gain an equal level of satisfaction with each combination. These combinations are given in the below indifference schedule. Prepare an indifference curve for the same.

Combinations	Chocolate	Ice-Cream
A	1	16
B	2	8
C	3	4
D	4	2
E	5	1

Solution:

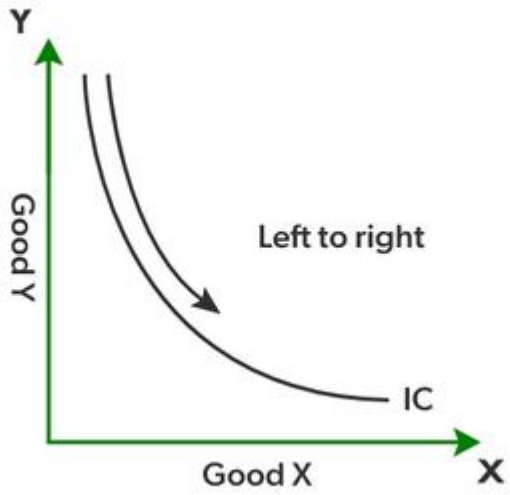


In the above graph, points or combinations A, B, C, D, and E provide the same satisfaction level to Nisha. It can also be seen that as Nisha is consuming one additional quantity of chocolate, she has to sacrifice or give up some quantity of ice cream. Therefore, when Nisha moves from Combination A to B to consume one extra chocolate, she has to sacrifice 8 units of ice-creams. Similarly, to move from Combinations B to C, C to D, and D to E, she has to sacrifice 4, 2, and 1 unit of ice-creams, respectively, for the consumption of one extra unit of chocolate at each movement. This sacrifice of units of a good to gain an additional unit of another good is known as the **.**

Marginal Rate of Substitution can be defined as the amount of Good Y sacrificed to obtain an additional unit of Good X without affecting the total satisfaction level.

Properties of Indifference Curve

1. Indifference Curve always slopes downwards from left to right



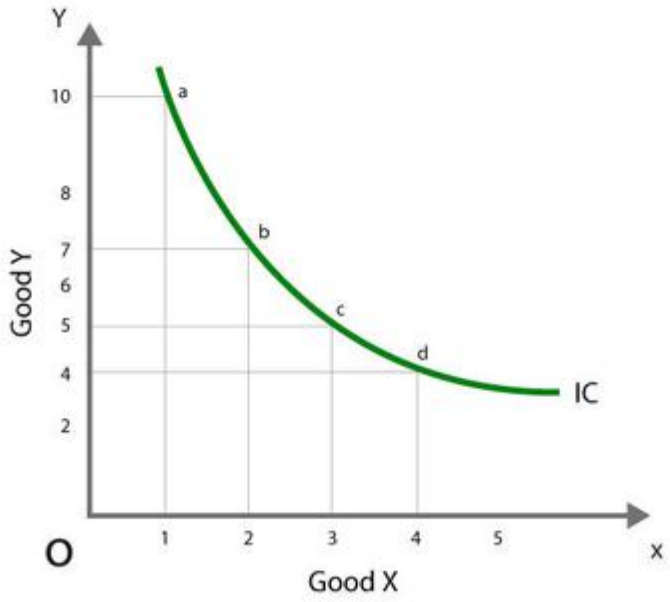
An indifference curve is defined as a curve that gives an equal level of satisfaction to a consumer at every possible combination. It is possible when a consumer is willing to sacrifice some quantity of a good to gain an additional unit of another good. If a consumer is having more of a good without any fall in another good, the consumer will achieve a higher satisfaction level instead of equal. This fall in units of one good to gain more of another good gives a downward slope to the indifference curve.

2. Indifference Curves are always convex to the point of origin

The shape of an indifference curve is based on the **Diminishing Marginal Rate of Substitution.** It means that to gain a single extra unit of a good, a consumer is willing to sacrifice more of another good. As in the case of Nisha (example above), to gain one more unit of chocolate, she is willing to sacrifice more units of ice-creams. This diminishing marginal rate of substitution gives a convex shape to an indifference curve.

However, there are two extreme scenarios for the shape of an indifference curve.

- When two goods are the perfect substitute for each other, the shape of the indifference curve is a straight line. In this case, the Marginal rate of substitution is constant.
- When two goods are perfectly complementary to each other, the shape of the indifference curve is L-shaped and is convex to the origin.

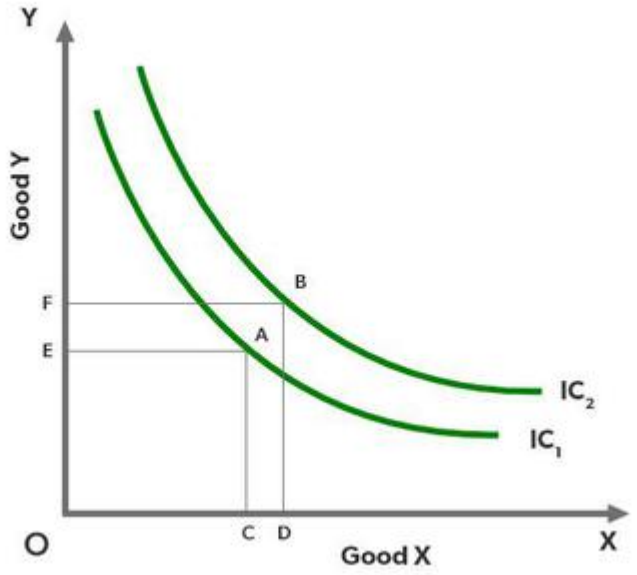


As it can be seen in the above image, to attain an additional unit of Good X, i.e., to move from 1 unit to 2 units, the consumer has to sacrifice some units of Good Y, i.e., 3 units (from 10 units to 7 units).

The **Diminishing Marginal Rate of Substitution** refers to the consumer's willingness to part with less and less quantity of one good to gain one more additional unit of another good.

3. Higher Indifference Curves represent a higher level of satisfaction

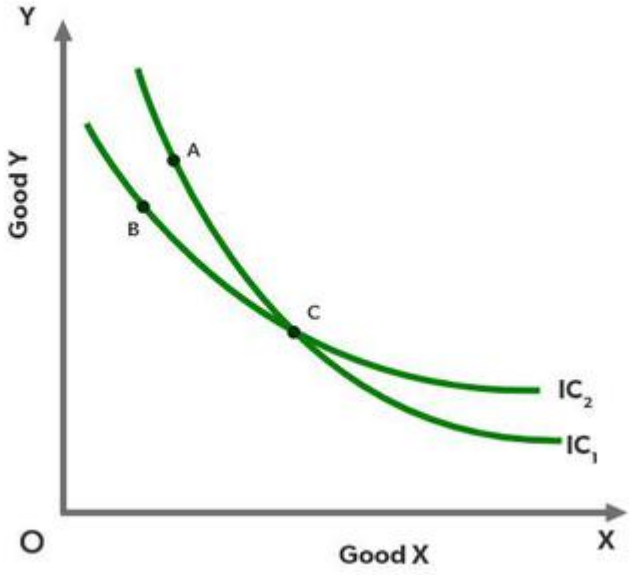
A higher indifference curve represents a higher level of satisfaction, or we can say that an indifference curve to the right of another gives more satisfaction. This property of the indifference curve is based on the assumption of monotonic preference. **Monotonic Preference** means that a consumer will always prefer a larger bundle, as it gives him/her a higher satisfaction level. In other words, as a consumer prefers more goods, and a higher indifference curve will give a higher satisfaction level.



After comparing points A and B on IC_1 and IC_2, respectively, it can be seen that Bundle A involves OC of Good X and OE of Good Y. However, Bundle B involves OD of Good X and OF of Good Y, which shows that the consumer has more goods in Bundle B, which implies more utility or satisfaction level. Therefore, a higher indifference curve means a higher level of satisfaction.

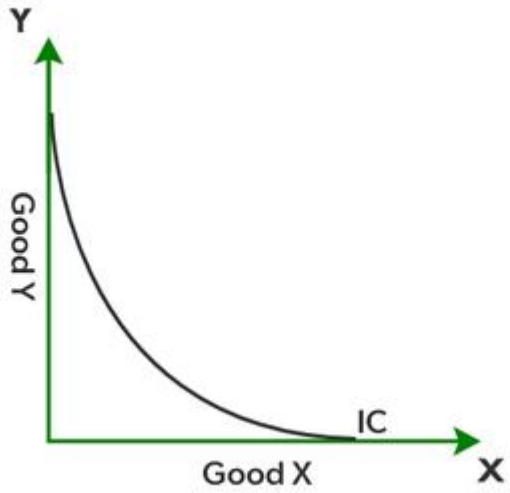
4. Two Indifference Curves cannot intersect each other

An indifference curve consists of different combinations of two goods giving the same satisfaction level to a consumer. It means that every point on an indifference curve gives the same satisfaction to the consumer. Also, an indifference map consists of different indifference curves with different satisfaction levels in each curve. If two indifference curves intersect with each other, it would mean that one point on each curve gives the same level of satisfaction which contradicts the meaning of an indifference map. Therefore, two indifference curves never intersect each other.



If the above figure is true and two indifference curves IC_1 and IC_2 intersect each other, then it would mean that Point C provides the same satisfaction level to the consumer. However, it has already been proved under Indifference Map that two indifference curves on a single graph show different satisfaction levels along the curve. Therefore, two indifference curves can never intersect each other.

5. An Indifference Curve never touches either of the axes



The indifference curve is based on the assumption that a consumer considers different possible combinations of two goods and wants both goods. If an indifference curve touches either of the axes, it would mean that a consumer is consuming the whole of one good only, which is not possible and contradicts the assumption. Therefore, an indifference curve never touches either of the axes.

Budget Line: Meaning, Properties, and Example

What is Budget Line?

The term **budget line** refers to a graphical representation of all the potential combinations of two commodities that can be bought within a certain income and price, and all of these combinations provide the same satisfaction level. It comes with the condition that the cost of each combination must be less than or equal to the consumer's money income. Simply put, a budget line is the locus of various combinations of two goods a consumer consumes and whose cost is equal to his income. Other names of Budget Line are **Price Line, Price Opportunity Line, Budget Constraint Line, or Price Income Line.**

For example, a consumer's income is ₹10 and he wants to spend the money on two commodities, say X and Y and both of these goods are priced at ₹5 each. Now the consumer has three options for spending his income. The first option is to buy two units of commodity X. Second option is to buy two units of commodity Y. or the third option is to buy one unit of commodity X and one unit of commodity Y. This means that the possible bundles, in this case, can be (2, 0); (0, 2); and (1, 1). Now, when all of these three bundles are represented on a graph, a downward-sloping straight line is formed which is known as a budget line.

Budget Set

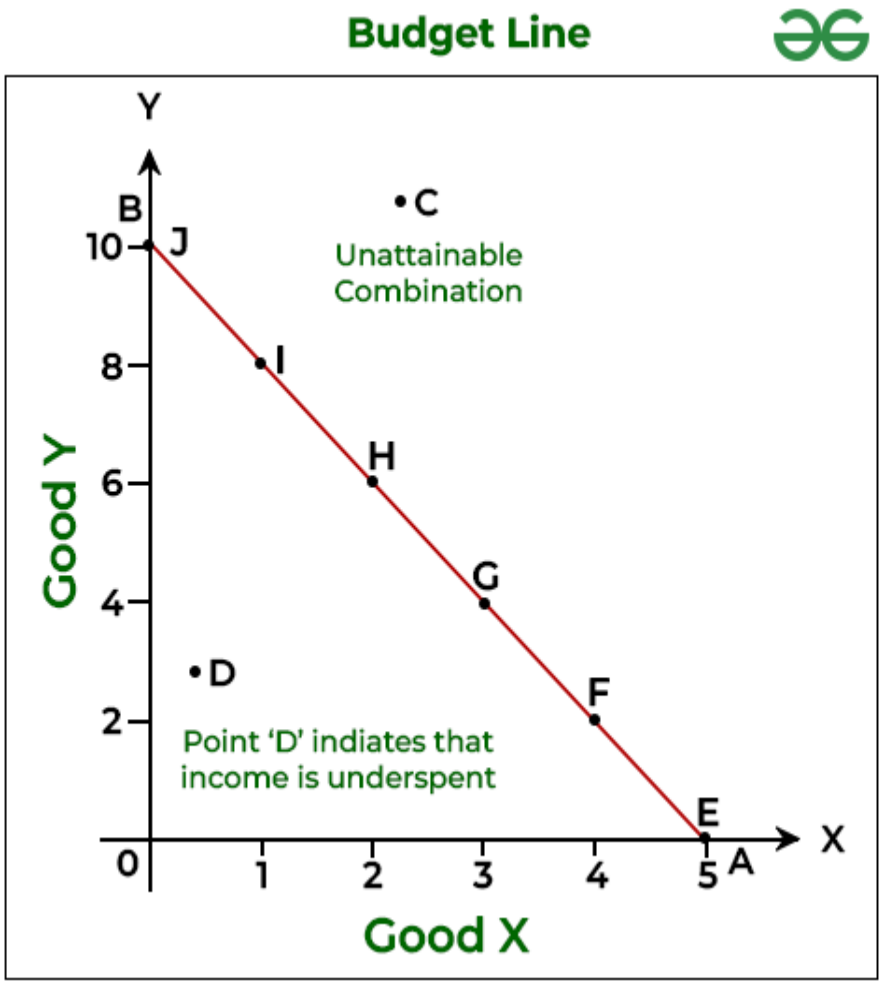
The set of all possible combinations of the two commodities a consumer can afford to buy with his given income and price in the market is known as a budget set. In the **above example,** besides the three options; viz., (2, 0); (0, 2); and (1, 1), there are some other options which are available for the customer within his total income of ₹10, even if he does not spend his entire income. A budget set in this case will include all the bundles which have a total income of ₹10. The possible Consumer's Bundles are (0, 0); (0, 1); (0, 2); (1, 0); (2, 0); and (1, 1). Hence, a consumer's bundle is a quantitative combination of two goods which a consumer can purchase from his given income.

Diagrammatic Explanation of Budget Line

Assume that a consumer has a total budget of ₹40, with which he can buy various combinations of Good X and Good Y. The cost of one unit of Good X is ₹8 and the cost of one unit of Good Y is ₹4 respectively. Now, the potential set of combinations that can be purchased by the consumer are:

Potential Combinations	Good X (₹8 each)	Good Y (₹4 each)	Money Spent = Individual Income (₹)
E	5	0	(5 x 8) + (0 x 4) = 40
F	4	2	(4 x 8) + (2 x 4) = 40

G	3	4	(3 x 8) + (4 x 4) = 40
H	2	6	(2 x 8) + (6 x 4) = 40
I	1	8	(1 x 8) + (8 x 4) = 40
J	0	10	(0 x 8) + (10 x 4) = 40



In the above graph, Good X is represented on the X-axis and Good Y on the Y-axis. At one extreme of the graph; i.e., Point E, the consumer can purchase 5 units of Good X by spending the entire income; i.e., ₹40 on it. The other extreme point of the graph; i.e., Point J, the consumer can purchase 10 units of Good Y by spending the entire income on Good Y. Between these two extreme points, there are other combinations; i.e., Point F, G, H, and I. By joining the points from E to J, a straight line 'AB' is formed, which is known as the **Budget Line** or **Price Line.**

Therefore, in the above graph, AB is the Budget Line and OAB is the Budget Set. Also, every point on the Budget Line indicates different bundles of Good X and Good Y that the consumer can purchase by spending his entire income of ₹40 at the given prices of goods.

Important Observations:

1stThe slope of Budget Line AB is downwards. It is because more of one good can be bought by decreasing some units of the other good.

2ndThe bundles whose cost is exactly equal to the consumer's money income, such as combinations E to J, lie on the budget line.

3rdThe bundles whose cost is less than the consumer's money income, such as combination D, show underspending by the consumer. These bundles lie inside the budget line.

4thThe bundles whose cost is more than the consumer's money income, such as combination C, show unattainable combinations; i.e., the combinations which are not available to the consumer. These bundles lie outside the budget line.

5thBudget Line is more relevant than Budget Set when one needs to determine the Consumer's Equilibrium as it is based on the assumption that the consumer spends his entire income.

Algebraic Expression of Budget Line

The Budget Line can be expressed as an equation:

$$M = (P_X \times Q_X) + (P_Y \times Q_Y)$$

Where,

M = Individual's Income

P_X = Price of Commodity X

Q_x = Quantity of Commodity X

P_Y = Price of Commodity Y

Q_Y = Quantity of Commodity Y

All points on the Budget Line AB show those bundles whose cost is exactly equal to M.

Slope of Budget Line

A curve's slope is usually determined by dividing the change in a variable on the vertical axis (Y-axis) by the change in a variable on the horizontal axis (X-axis). In the previous example of Good X and Good Y, the slope of the budget line will be the number of units of Good Y, that a consumer is willing to sacrifice for one extra unit of Good X.

As seen in the above graph, as we move downwards the slope, 2 units of Good Y need to be sacrificed to gain 1 unit of Good X. Therefore, the Slope of Budget Line is .

* The numerator of a budget line will always be negative as it shows the number of units to be sacrificed. However, to have better analysis, absolute value is considered.

The Slope of a Budget Line is denoted by the **Market Rate of Exchange** or **MRE.** Market Rate of Exchange is the rate at which one good is sacrificed in the market in order to obtain one additional unit of other good. Also, the slope of a budget line or MRE is equal to the **Price Ratio** of two goods.

Price Ratio

The price of the good on X-axis divided by the price of the good on Y-axis is known as Price ratio. **For example,** if Good X is shown on horizontal axis and Good Y on vertical axis, then

Why Slope of the Budget Line is represented by Price Ratio?

A point on the budget line represents a bundle, which a consumer can purchase by spending his entire income. Therefore, if a consumer wants to consume one more unit of a good (say, Good Y), he has to sacrifice some amount of other good (say, Good X). In the above example, Good X is priced at ₹8 (P_x) and Good Y at ₹4 (P_Y). So, if the consumer wants to gain 1 unit of Good X, he will have to reduce his expenditure on Good Y by ₹4. Therefore, the consumer will have to sacrifice 2 units of Good Y to gain 1 unit of Good X, which means that the consumer will have to give

\frac{P_X}{P_Y} units of Good Y to gain one unit of Good X. Here, is the price ratio between Good X and Good Y.

Hence, it can be said that Price Ratio indicates the Slope of the Budget Line.

Properties of Budget Line

The two major properties of a Budget Line are as follows:

1st **Budget Line slopes Downward:** The slope of a budget line is negative. It means that as more of one good is bought by reducing some units of the other good, the slope of the budget line goes downwards.

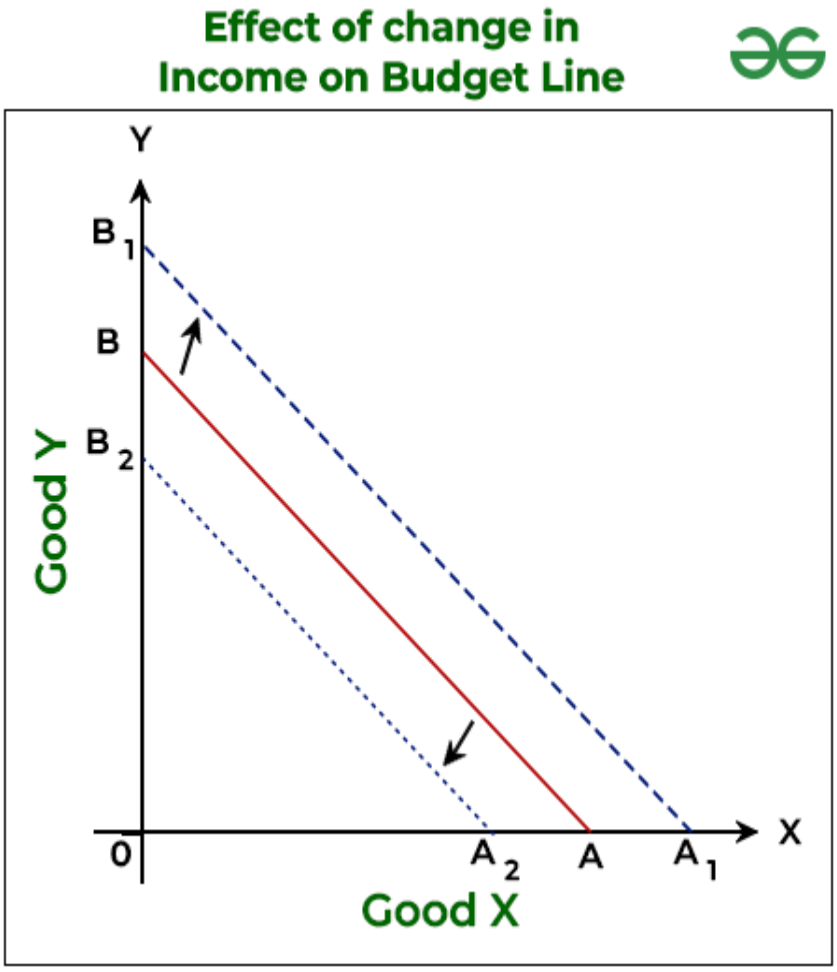
2nd **Budget Line is a Straight Line:** We know that the slope of the Budget Line is represented by the Price Ratio, which is constant throughout; therefore, the Budget Line is a straight line.

Shift in Budget Line

While drawing a budget line, it is assumed that the income of the consumer and the price of the commodities is constant. Therefore, the need to draw a new budget line will arise when there is either a Change in the Income of the Consumer or a Change in the Price of the Commodity.

1. Effect of a Change in the Income of Consumer:

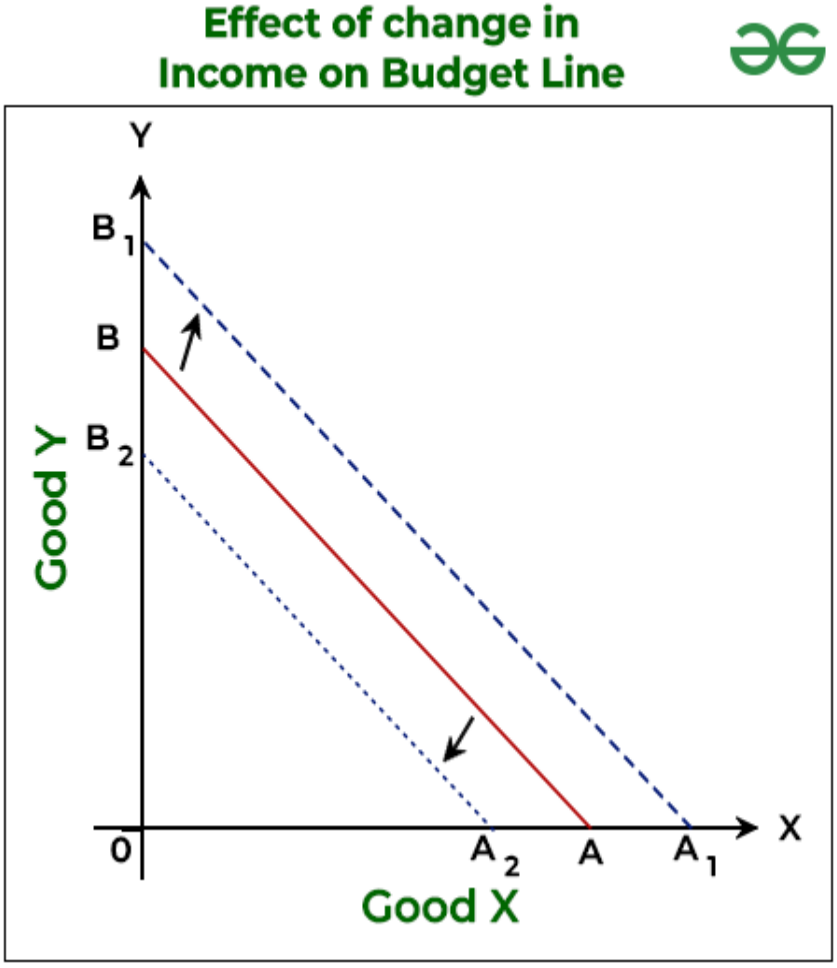
While assuming that the price of Good X and Good Y in the above example remains constant, if there is a change in the income of the consumer, then the budget line will shift. When there is an increase in the income of the consumer, then he will be able to purchase more bundles of Good X and Good Y, which were not possible for him earlier. This will shift the budget line to the right from AB to A_1B_1. This new budget line will be parallel to the original budget line. Similarly, when there is a reduction in the income of the consumer, then the budget line will shift to the left from AB to A_2B_2.



2. Effect of Change in Prices of the Commodities:

There are three cases in which the price can change. These are as follows:

i) Change in Prices of both Commodities: When the price of both goods changes, then the budget line will shift. If the price of both goods falls, then the Budget Line will shift right from AB to A_1B_1. However, if the price of both goods increases, then the Budget Line will shift to the left from AB to A_2B_2.



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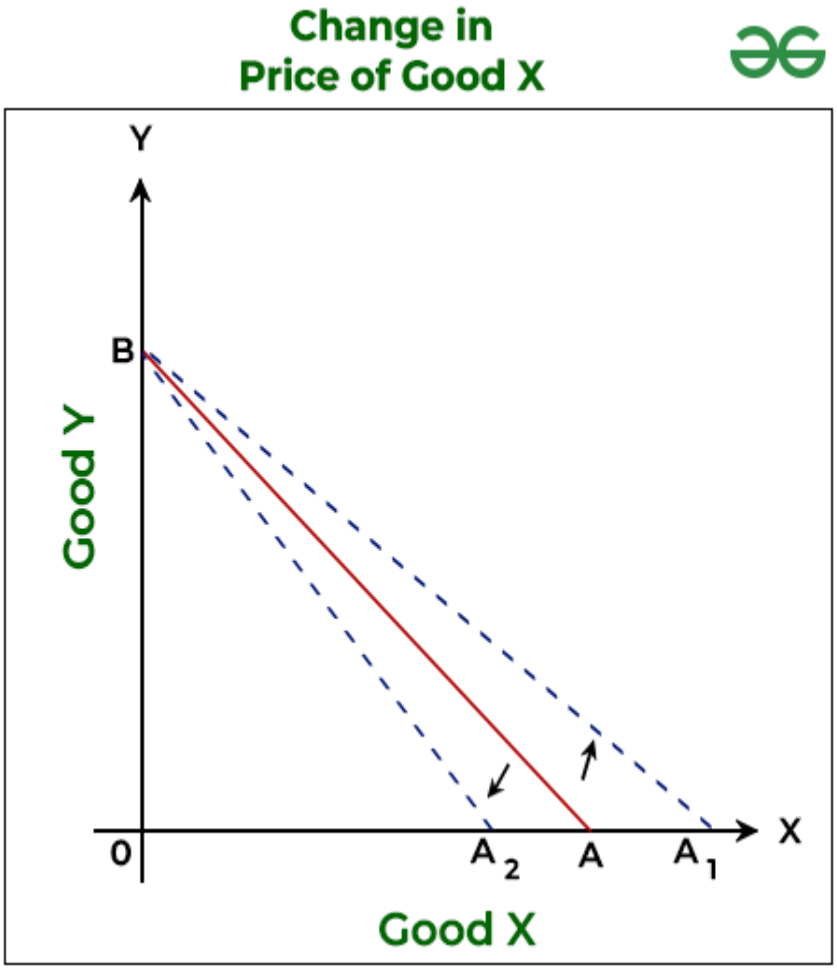
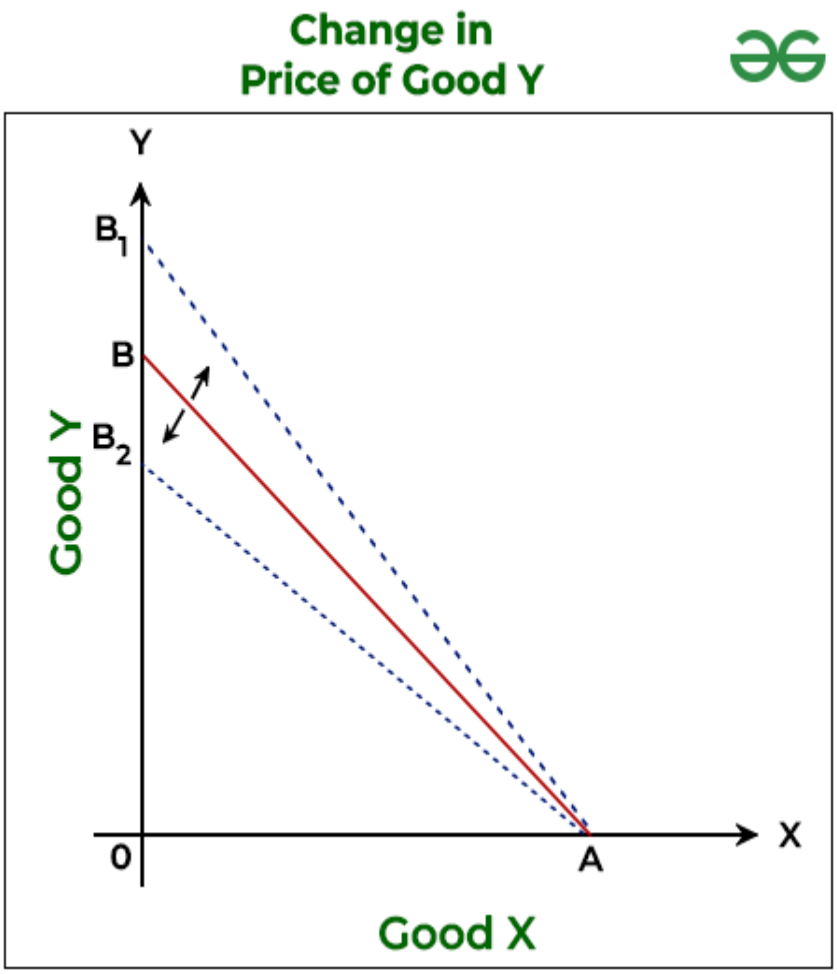


iii) Change in the Price of Commodity on the Y-axis (Good Y): When the price of Good Y falls, then the budget line will rotate to the right from AB to AB_1. It means that the new budget line will meet the X-axis at the same point; i.e., A because the price of Good X has not changed; however, it will touch the Y-axis at point B_1 because the consumer can now buy more units of Good Y with his same income level. Similarly, if the price of Good Y rises, then the budget line will rotate to the left from AB to AB_2.


Change in
Price of Good Y
Y
B1
B
B2
Good Y
0
A
X
Good X

Difference between Budget Line and Budget Set

What is Budget Line?

A graphical representation of all possible combinations of two goods which a consumer can purchase with the given prices and income in a way that the cost of each of these combinations is equal to the consumer's money income is known as a budget line. a budget line is also known as Price Line. **For example,** a consumer's income is ₹10 and he wants to spend the money on two commodities, say X and Y and both of these goods are priced at ₹5 each. Now the consumer has three options for spending his income. The first option is to buy two units of commodity X. Second option is to buy two units of commodity Y. or the third option is to buy one unit of commodity X and one unit of commodity Y. This means that the possible bundles, in this case, can be (2, 0); (0, 2); and (1, 1). Now, when all of these three bundles are represented on a graph, a downward-sloping straight line is formed which is known as a budget line.

What is Budget Set?

The set of all possible combinations of the two commodities a consumer can afford to buy with his given income and price in the market is known as a budget set. In the **above example,** besides the three options; viz., (2, 0); (0, 2); and (1, 1), there are some other options which are available for the customer within his total income of ₹10, even if he does not spend his entire income. A budget set in this case will include all the bundles which have a total income of ₹10. The possible Consumer's Bundles are (0, 0); (0, 1); (0, 2); (1, 0); (2, 0); and (1, 1). Hence, a consumer's bundle is a quantitative combination of two goods which a consumer can purchase from his given income.

Difference between Budget Line and Budget Set

Basis	Budget Line	Budget Set
Meaning	A graphical representation of all possible combinations of two goods which a consumer can purchase with the given prices and income in a way that the cost of each of these combinations is equal to the consumer's money income.	The set of all possible combinations of the two commodities a consumer can afford to buy with his given income and price in the market.
Lies on	All the bundles of a budget line lie only on the budget line.	All the bundles of budget set lie either on or below the budget line.

Basis	Budget Line	Budget Set
Represents	A budget line represents the maximum limit a consumer can spend on buying goods.	A budget set represents all the sets of two goods that fall on or before the budget line.
Sets	The sets of two goods represented on the budget line are equal to the consumer's income.	The sets of two goods represented on the budget set are equal to or less than the consumer's income.
Interrelationship	A budget line is the border line of the budget set.	A budget set shows the different combinations of two goods helping in drawing a budget line.
Equation	$M = (P_A \times Q_A) + (P_B X Q_B)$	$M \geq (P_A \times Q_A) + (P_B X Q_B)$

Shift in Budget Line

While drawing a budget line, it is assumed that the income of the consumer and the price of the commodities is constant. Therefore, there will be a shift in the budget line when there is either a Change in the Income of the Consumer or a Change in the Price of the Commodity.

What is Budget Line?

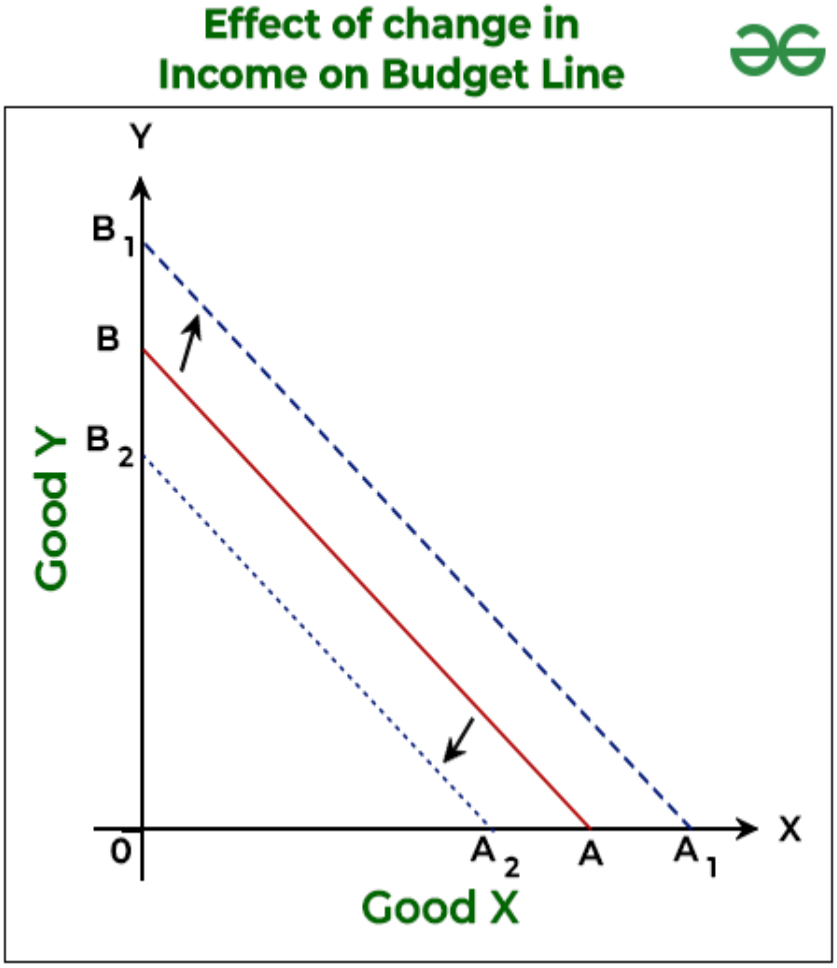
The term **budget line** refers to a graphical representation of all the potential combinations of two commodities that can be bought within a certain income and price, and all of these combinations provide the same satisfaction level. It comes with the condition that the cost of each combination must be less than or equal to the consumer's money income. Simply put, a budget line is the locus of various combinations of two goods a consumer consumes and whose cost is equal to his income. Other names for Budget Line are **Price Line, Price Opportunity Line, Budget Constraint Line, or Price Income Line.**

Shift in Budget Line

There is a shift in the budget line when there is a change in the income of the consumer or when there is a change in the prices of either one or both commodities.

1. Effect of a Change in the Income of Consumer:

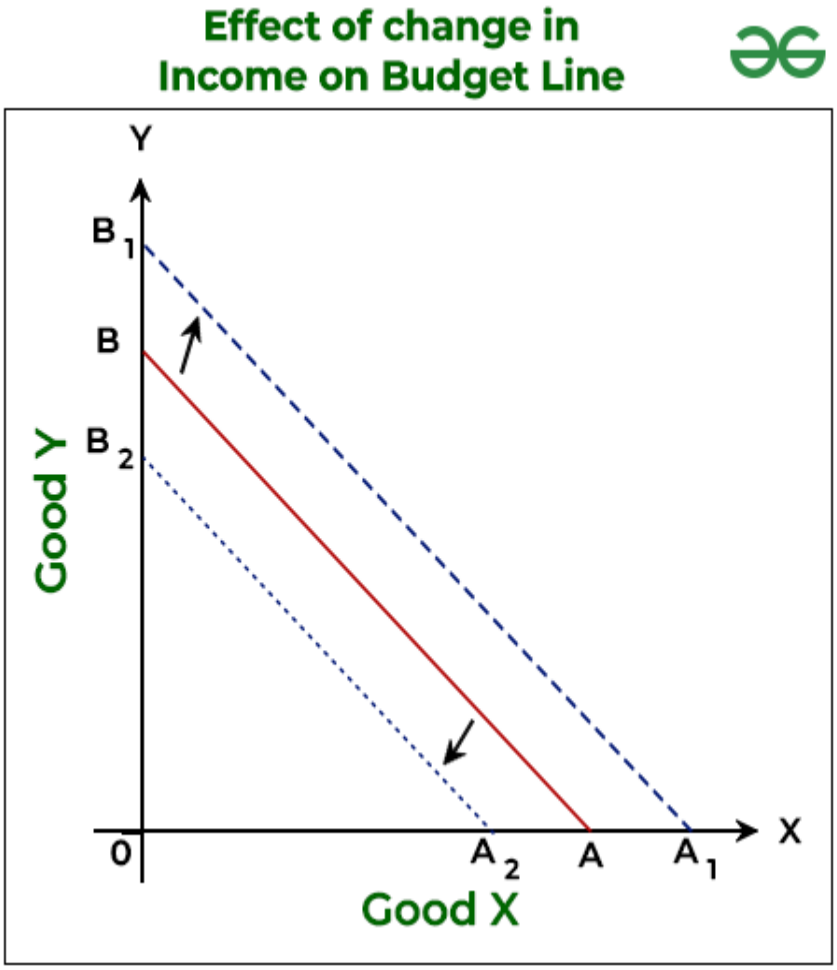
While assuming that the price of Good X and Good Y in the above example remains constant, if there is a change in the income of the consumer, then the budget line will shift. When there is an increase in the income of the consumer, then he will be able to purchase more bundles of Good X and Good Y, which were not possible for him earlier. This will shift the budget line to the right from AB to A_1B_1. This new budget line will be parallel to the original budget line. Similarly, when there is a reduction in the income of the consumer, then the budget line will shift to the left from AB to A_2B_2.



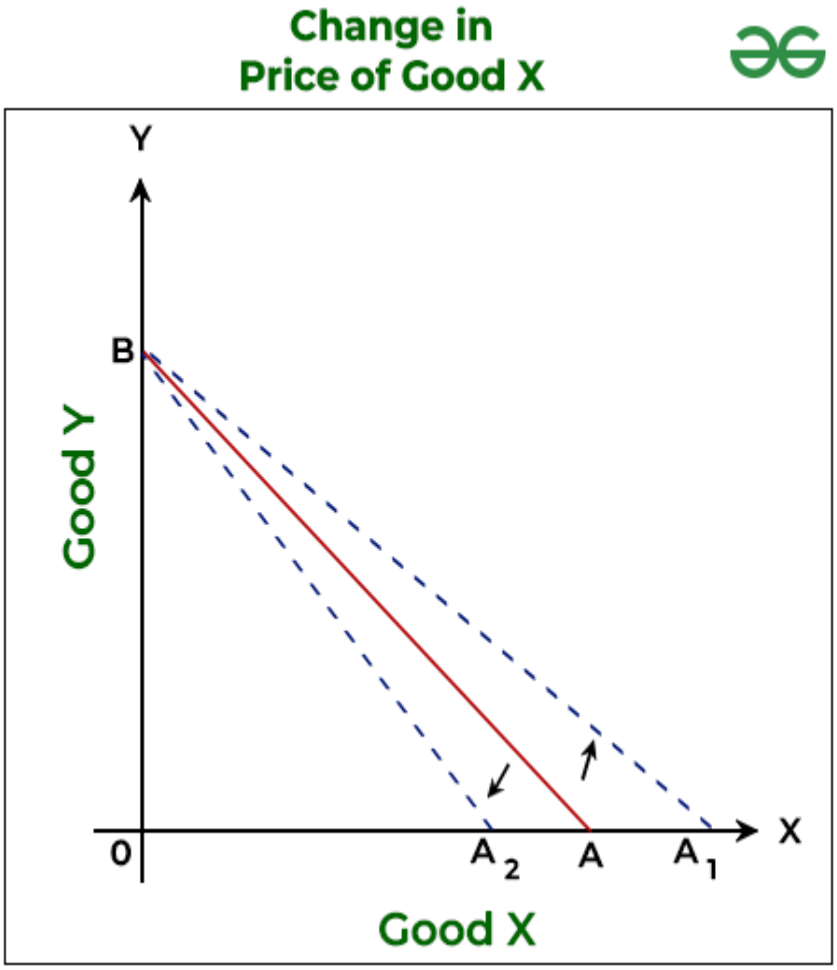
2. Effect of Change in Prices of the Commodities:

There are three cases in which the price can change. These are as follows:

i) Change in Prices of both Commodities: When the price of both goods changes, then the budget line will shift. If the price of both goods falls then the Budget Line will shift right from AB to A_1B_1. However, if the price of both goods increases then the Budget Line will shift to the left from AB to A_2B_2.



ii) Change in the Price of Commodity on the X-axis (Good X): When the price of Good X falls, then the budget line will rotate to the right from, AB to A_1B. It means that the new budget line will meet the Y-axis at the same point; i.e., B because the price of Good Y has not changed; however, it will touch the X-axis at point A_1, because the consumer can now buy more units of Good X with his same income level. Similarly, if the price of Good X rises, then the budget line will rotate to the left from AB to A_2B.



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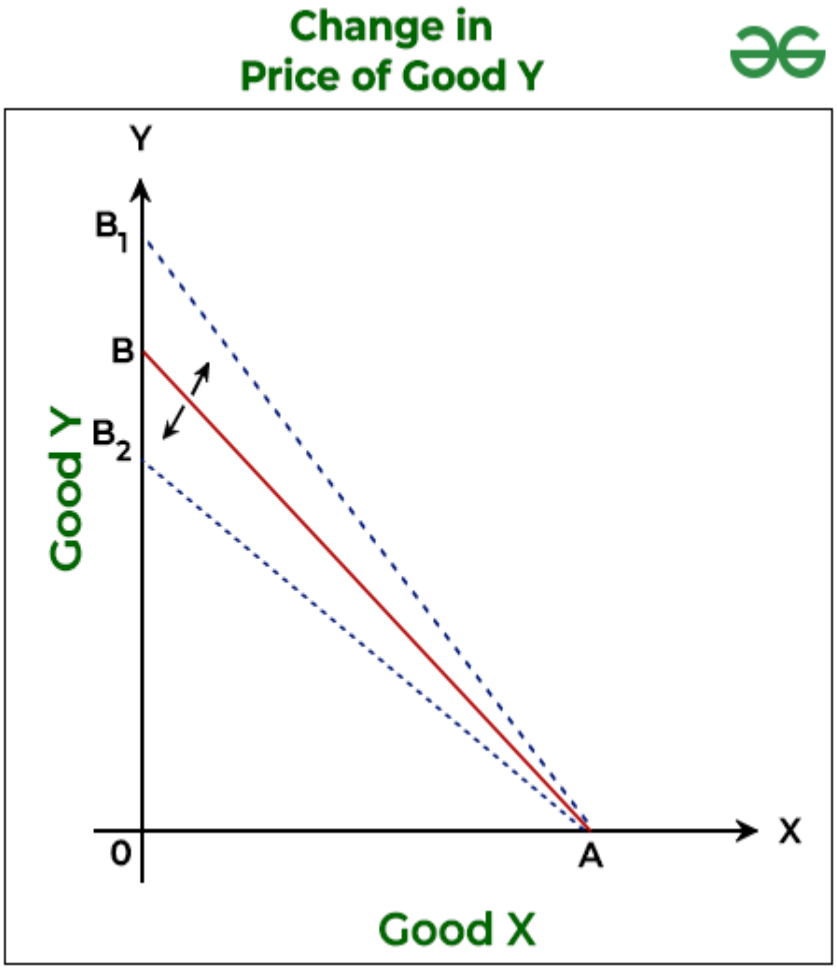

Consumer’s Equilibrium by Indifference Curve Analysis

What is Consumer’s Equilibrium?

The term *equilibrium* is used frequently in economic analysis. It is a state of rest or a position of no change, which under a situation provides the maximum gain. A consumer is said to be in equilibrium when he has derived maximum satisfaction and does not want to change his consumption level. Hence, **Consumer’s Equilibrium** is a situation in which a consumer has maximum satisfaction with limited income and does not tend to change his existing way of expenditure.

The point of equilibrium or maximum satisfaction is achieved by the study of the indifference map and budget line together. An indifference map represents every possible indifference curve that the consumer has, which helps in ranking their preferences. The combination of goods on the higher indifference curve gives a higher satisfaction level to the consumer. Therefore, the highest of the indifference curves of an indifference map is preferred by a consumer.

Conditions of Consumer’s Equilibrium

Consumer’s equilibrium can be achieved with the help of indifference curve theory only after meeting the following two conditions:

1. MRS_{XY} = Ratio of Prices or = Market Rate of Exchange (MRE)

Suppose there are two goods, X and Y. The first condition would be

- If MRS_{XY}>\frac{P_X}{P_Y}, it means that as compared to the market requirements, to obtain one more unit of Good X, the consumer is willing to sacrifice more units of Good Y. This situation induces the consumer to purchase more of Good X, resulting in a fall in MRS till it becomes equal to the \frac{P_X}{P_Y} and equilibrium is achieved.
  Simply put, MRS_{XY}>\frac{P_X}{P_Y}~or~MRE means that the rate at which the consumer is willing to sacrifice more of Y to obtain one additional unit of X; i.e., MRS is more than the rate at which the consumer has to sacrifice Y to obtain one additional unit of X; i.e., MRE.

- If , it means that as compared to the market requirements, to obtain one more unit of Good X, the consumer is willing to sacrifice less units of Good Y. This situation induces the consumer to purchase less of Good X and more of Good Y, resulting in a rise in MRS till it becomes equal to the \frac{P_X}{P_Y} and equilibrium is achieved.

2. MRS continuously falls

Another condition for consumer's equilibrium is that the Marginal Rate of Substitution (MRS) at the equilibrium point must be diminishing. In simple terms, at the point of equilibrium, the indifference curve must be convex to the origin. Also, one cannot achieve the equilibrium point, unless the Marginal Rate of Substitution (MRS) falls.

After fulfilling both the above-mentioned conditions, a consumer is said to be in equilibrium.

In the above graph, IC_1, IC_2, and IC_3 are three indifference curves, and AB is the budget line. The highest indifference curve that a consumer can reach with the budget line's constraint is IC_2. The budget line AB is tangent to the indifference curve IC_2 at point E. This point is the point of equilibrium, where the consumer buys OM quantity of Good X and ON quantity of Good Y.

The other points, i.e., F and G to the left or right of point E lie on the lower indifference curve IC_1, indicating a lower level of satisfaction. Also, as the budget line can be tangent to only one indifference curve, the consumer maximises his level of satisfaction at point E when he meets both conditions of the consumer's equilibrium, which are:

1. MRS_{XY} = Ratio of Prices or **= Market Rate of Exchange (MRE)**

OR

Slope of Indifference Curve = Slope of Budget Line

At the point of tangent, i.e., point E, the absolute value of the slope of the indifference curve; i.e., MRS between Good X and Good Y, and that of the budget line; i.e., price ratio are the same. Also, the consumer cannot attain equilibrium at the points left to E and right to E because at all those points $MRS_{XY}>\frac{P_X}{P_Y}$ and $MRS_{XY}<\frac{P_X}{P_Y}$ respectively. Hence, equilibrium is attained only at the point where $MRS_{XY}=\frac{P_X}{P_Y}$; i.e., point E.

2. MRS continuously falls: The second condition of consumer's equilibrium is also achieved at point E. It is because at this point MRS is diminishing, which means that IC_2 is convex to the origin here.