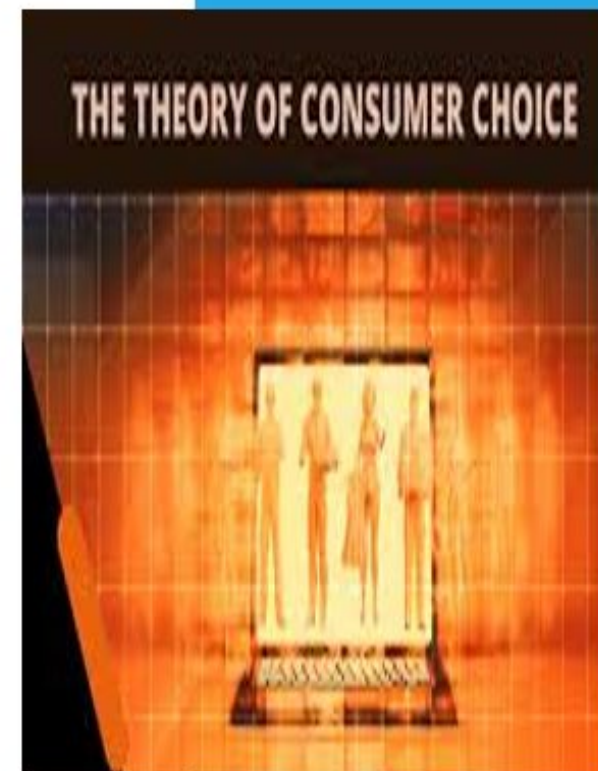


Chapter 4

Theory of Consumer Choice



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Syllabus

I- The Budget
Constraint

II- Different
Types of Goods

III- Mapping
Preferences with
Indifference
Curves

IV- Impact of
Income on
Consumer
Choices

V- Impact of
Price on
Consumer
Choices

I- Introducing the Budget Constraint

I-1- Trade-offs

I-2- Budget Curves

I-3-Indifference Curves

I-1-Trade-offs

- **Trade-off** is a situational decision that involves diminishing or losing one quality, quantity, or property of a set or design in return for gains in other aspects.

 **a tradeoff** is where **one thing increases**, and **another must decrease**.

- To expand upon this definition further, the business concept of **opportunity cost** via **trade-offs** is a central building block in understanding budget constraints.
- An **opportunity cost** is defined as the foregone value of the next best alternative in a given action.

I-2- The concept of budget constraint

- The idea is that a given consumer is limited in consumption relative to the amount of capital they possess.
- As a result, consumers analyze the optimal way in which to leverage their purchasing power to maximize their utility and minimize opportunity costs.
- This is achieved through using **budget constraints**, which represent the plausible combinations of products and/or services a buyer is capable of purchasing with its capital on hand.

Budget Constraint

I-3- The Budget line

- It indicates the relationship between two goods relative to opportunity costs, which defines the value of each good relative to one another.

Budget line: A line curve demonstrates the relationship between two goods relative to opportunity costs, essentially deriving the relative value of each good based on quantity and utility.

Budget Constraint

In the rest of the course, we will consider that:

P_X = Price of good X

$X = Q_X$ = Quantity of good x

P_Y = Price of good y

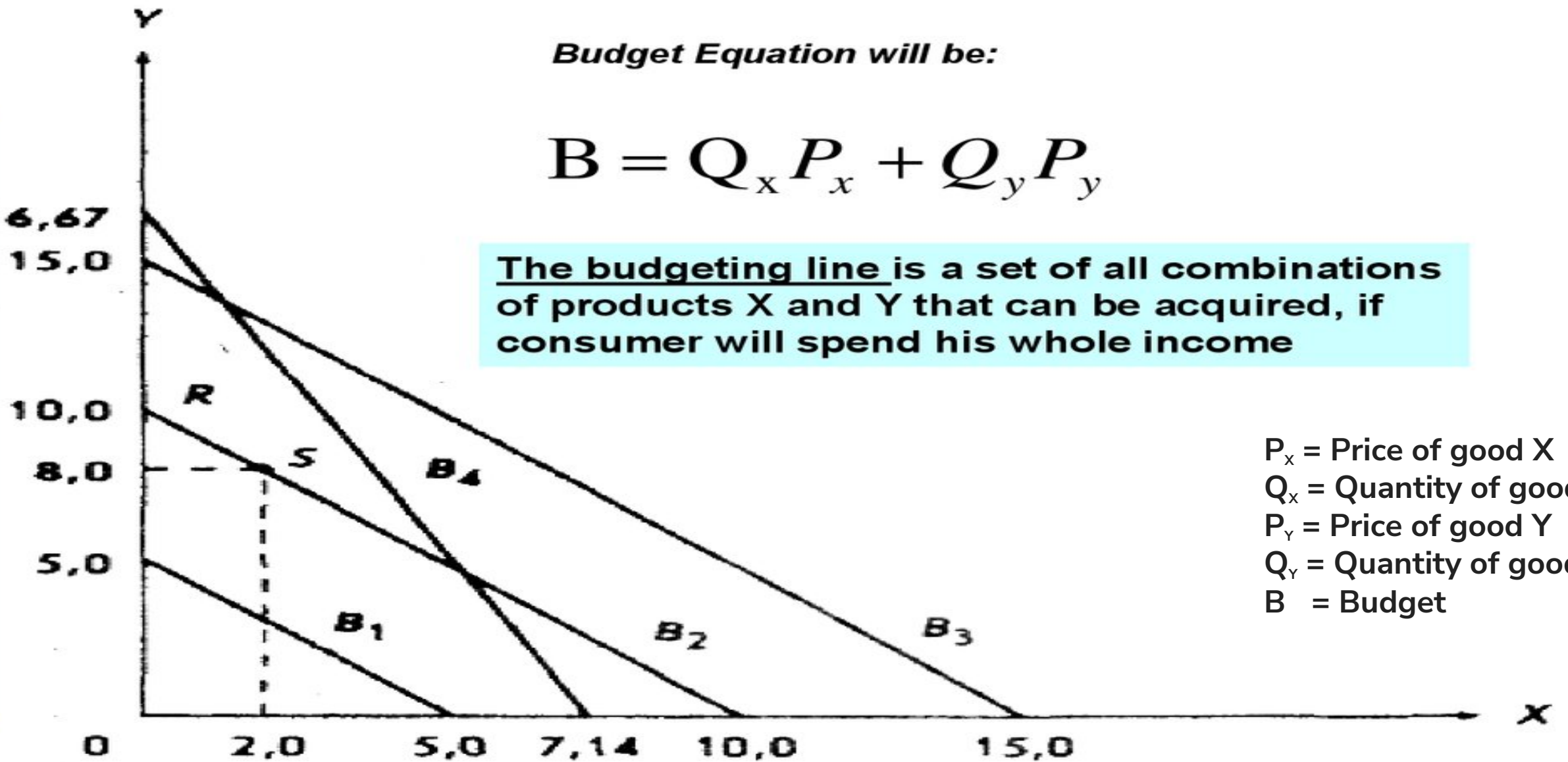
$Y = Q_Y$ = Quantity of good y

B = Budget or
I=Income

Budget Equation will be:

$$B = Q_x P_x + Q_y P_y$$

The budgeting line is a set of all combinations of products X and Y that can be acquired, if consumer will spend his whole income



P_x = Price of good X
 Q_x = Quantity of good X
 P_y = Price of good Y
 Q_y = Quantity of good Y
 B = Budget

Quantity of X, consumed for some definite period

I-4- The concept of the Budget Set or the Feasible Set

- Suppose that a consumer has a fixed amount of money to spend, M . There are two goods X and Y , with associated prices P_X and P_Y .
- The **feasible choices** that the consumer can make satisfy:

$$P_X X + P_Y Y \leq B$$

- In addition, we will focus on consumption and rule out negative consumption, so $x \geq 0$ and $y \geq 0$.
- This gives a **Budget Set** or **Feasible Set**, as illustrated in the figure in the next slide.

The Budget Set is the set of goods a consumer can afford to purchase.

A **Budget Set** implies the set of all the possible combinations of two goods that the consumer can afford or buy, which his/her income, at the existing market prices.

Basically, it contains **all those combinations** in the positive quadrant, **fall under or on the budget line**. It can be expressed as:

$$P_X Q_X + P_Y Q_Y \leq B$$

• Where,

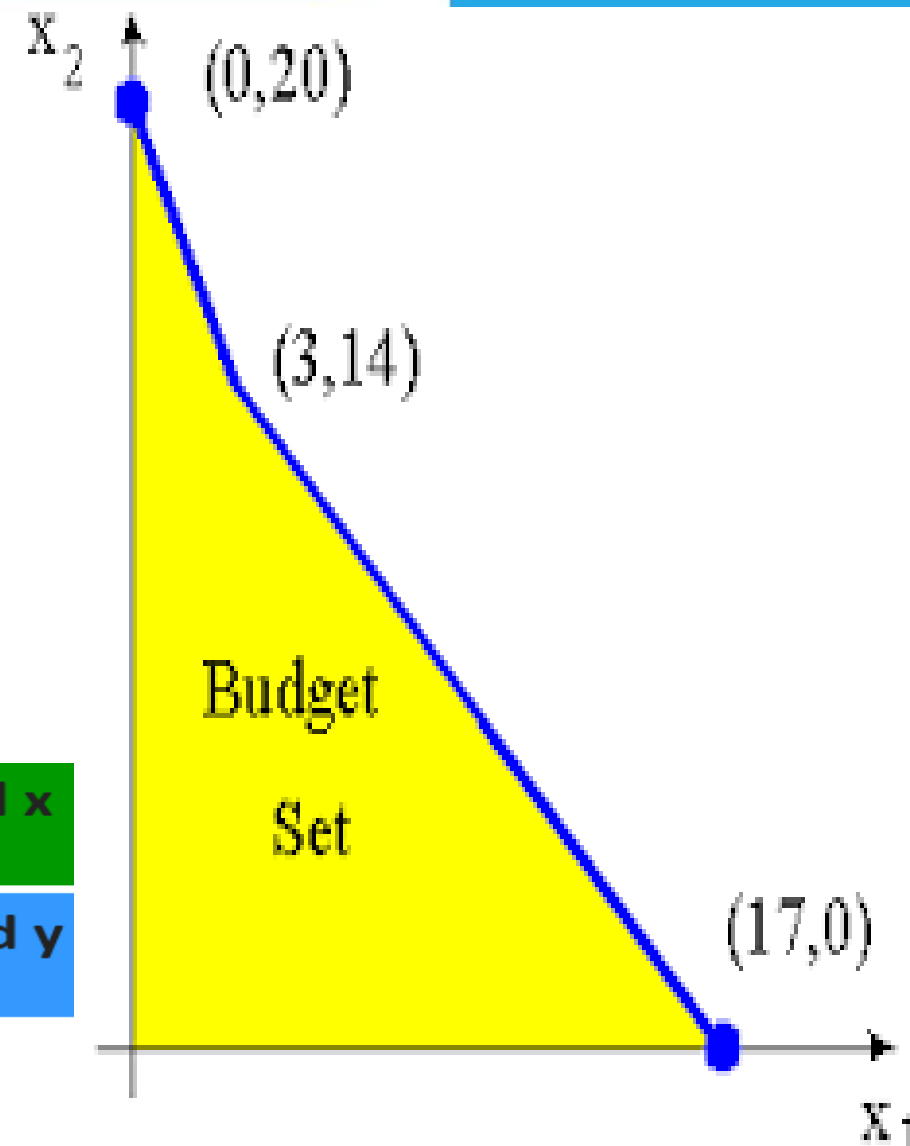
P_X = Price of good X

$X = Q_X$ = Quantity of good x

P_Y = Price of good y

$Y = Q_Y$ = Quantity of good y

B = Budget or
 I = Income



I- The Budget Constraint

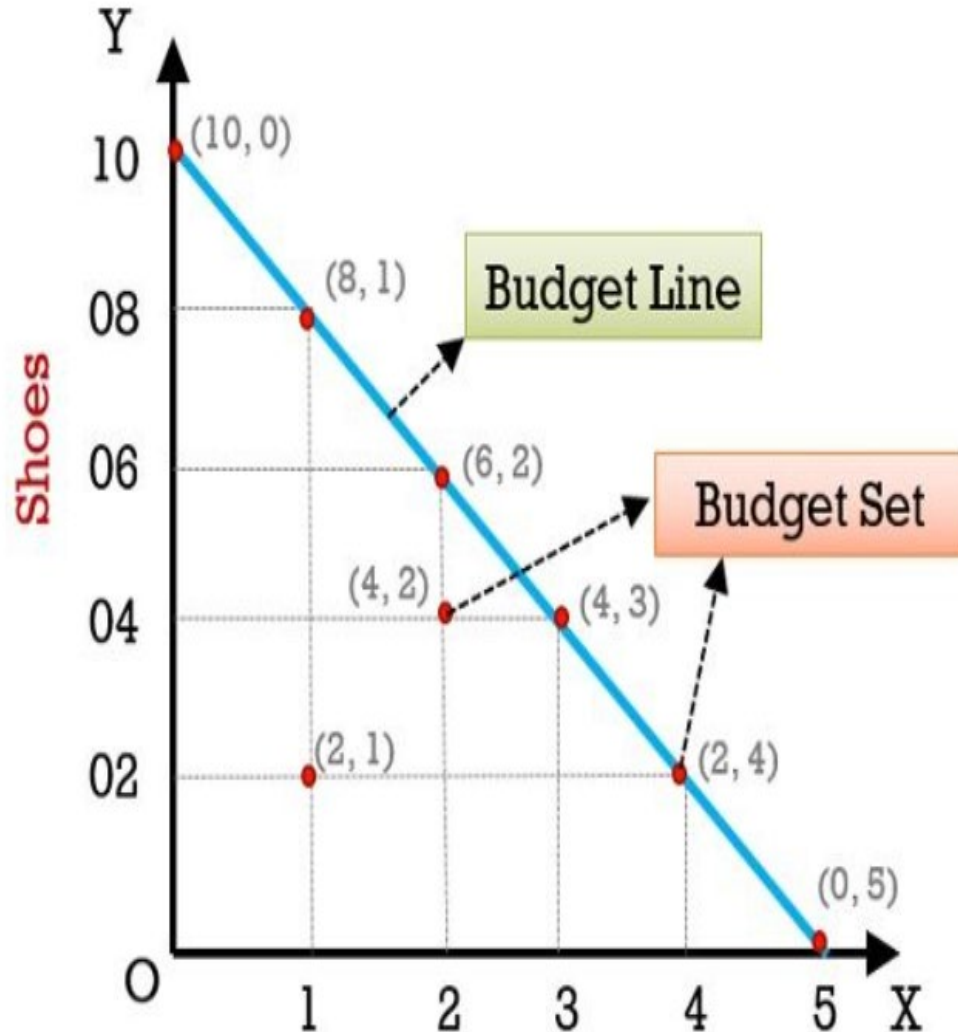
-8-

Conclusion

Basically, **Budget Line** shows the price ratio between two goods, i.e.

X and Y or the rate at which one commodity can be exchanged for the other, where the prices of the two goods are given.

Budget line depends on the consumer's income and price of the commodities.

**Budget Constraint**

Exercise:

The Budget line and The Budget Set

The table represented below highlights the bundles of clothes ($P_x = \$200$) and shoes ($P_y = \100) a consumer can buy, spending his income (budget), i.e \$ 1000.

Now let's take a look at the graph representing Budget Line and Budget Set:

Consumption Possibility Schedule

Shoes	Clothes
0	5
2	4
4	3
6	2
8	1
10	0

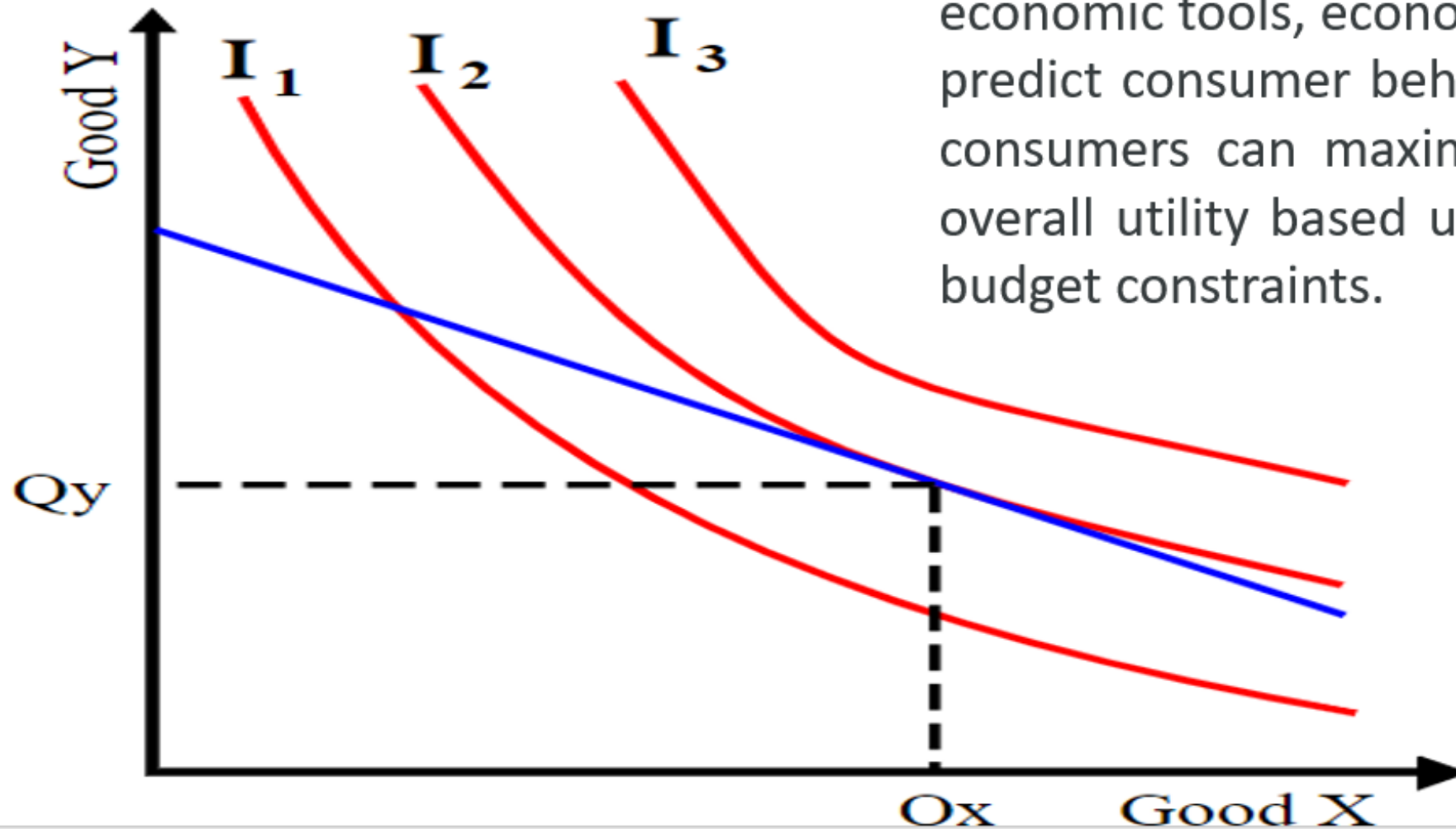
Budget Constraint

I-5- The Indifference Curves

- **Indifference curves:** They underline the way in which a given consumer interprets the value of each good relative to one another, demonstrating how much of 'good X' is equivalent in utility to a certain quantity of 'good Y' (and vice versa).
- Any point along the indifference curve will represent indifference to the consumer, or simply put equivalent preference for one combination of goods or the other.
- In the next figure, it is clear that the budget curve has been included in conjunction with the indifference curves, which allows insight as to the ideal actual quantity of each good is optimal for this specific consumer.

I- The Budget Constraint

-10-



Through utilizing these economic tools, economists can predict consumer behavior and consumers can maximize their overall utility based upon their budget constraints.



The Indifference Curves: The Indifference curves are designed to represent an equal perception of overall value in a given basket of goods relative to a specific consumer.

- That is to say that each point along the curve is considered by the consumer of equivalent value despite alterations in the quantity of each good, as these trade-offs are considered of equal value and thus indifferent.

II- Different types of Goods

II-1- Necessities v/s Luxuries

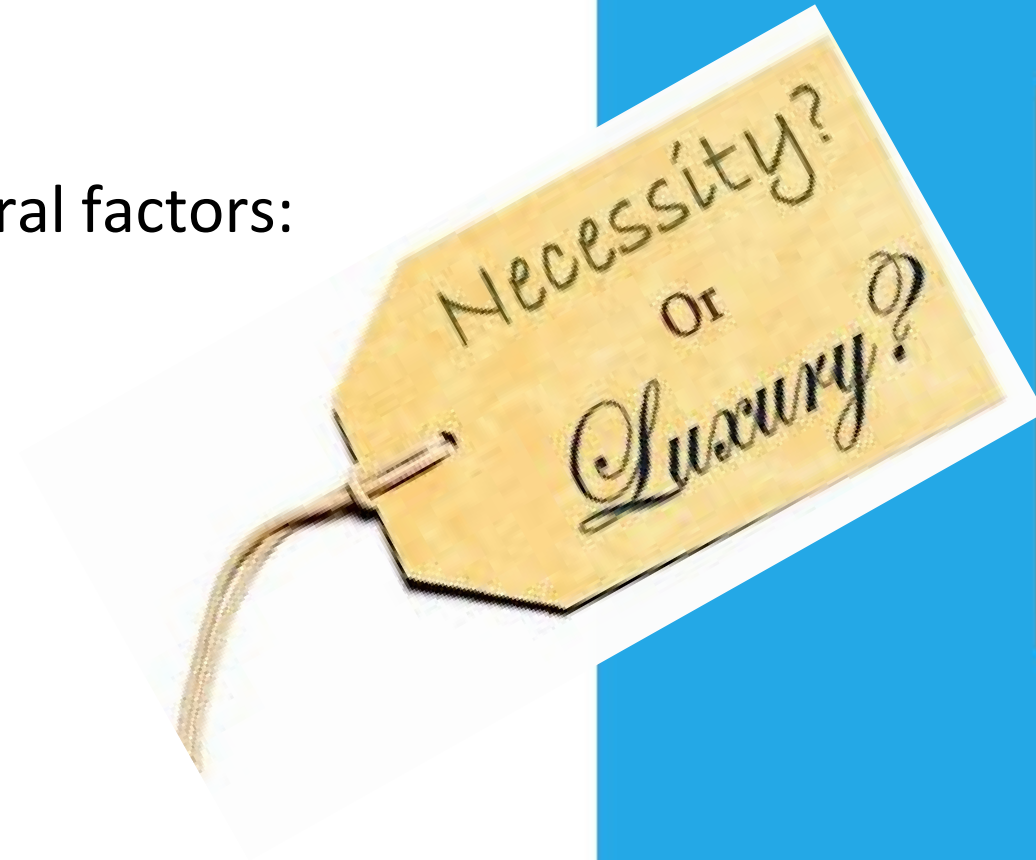
II-2- Substitutes v/s complementary goods

II- Different types of goods -1-

II-1- Necessities v/s Luxuries

Differences in price elasticity are explained by several factors:

- Whether the Good is a **Necessity** or **Luxury**
- The Availability of **Substitutes**
- The Price Relative to Income



II- Different types of goods -2-

II-1-1- Necessities

- A **necessity** is something you **absolutely must have, almost regardless of the price.**
- Some goods are so critical to our everyday life that we regard them as necessities.
- **Demand for necessities** is **relatively inelastic.**
- Toothpaste and gasoline are examples of necessities.



II- Different types of goods -3-

• II-1-2- Luxuries

- A **luxury good** is something we'd like to have but aren't likely to buy unless our income jumps or the price declines sharply:

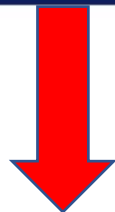
It is something that would be nice to have, but it's not absolutely necessary.

- Demand for luxury goods is **relatively elastic**.

- Vacation travel and diamonds are examples of luxury goods.



II- Different types of goods -4-

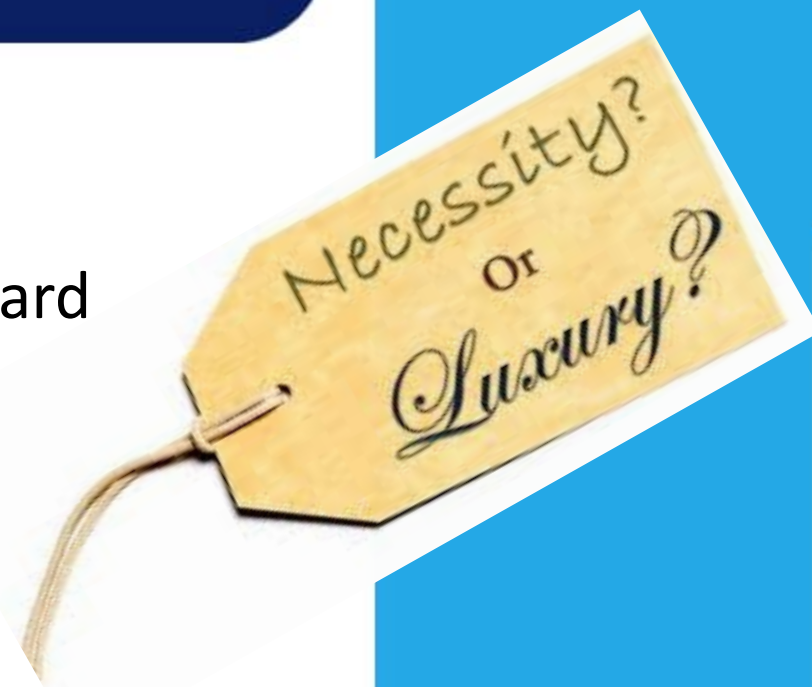


- Some goods are so critical to our everyday life that we regard them as **necessities**.

➡ Demand for necessities is **relatively inelastic**.

- A **luxury good** is something we'd like to have but aren't likely to buy unless our income jumps or the price declines sharply.

➡ Demand for luxury goods is **relatively elastic**.



II- Different types of goods -5-

II-2- Substitutes v/s complementary goods

II-2-1- Substitute Goods

- **Substitute Products** correspond to goods/services which are of a **different nature** but which meet **the same consumer need**.
- In other words, they represent **purchasing alternatives** and diversify the overall offer.
- Customers may choose the product they prefer if it's available and consider substitutes if the **price**, **availability** or **quality of their preferred product changes**.

Substitute
Goods

V/S

Complementary
Goods

II- Different types of goods -6-

- A **substitute good** may be perfect or imperfect:
 - * A **perfect substitute** is a product that's identical to the original item
 - * An **imperfect substitute** is a product that's similar but noticeably different from the original good.
- For the substitutes, the **demand for a good increases** when the **price of a substitute for the good goes up**.
- The **greater the availability of substitutes**, the **higher the price elasticity of demand**.
- The **smaller the availability of substitutes**, the **lower the price elasticity of demand**.

Substitute Goods

VS

Complementary Goods

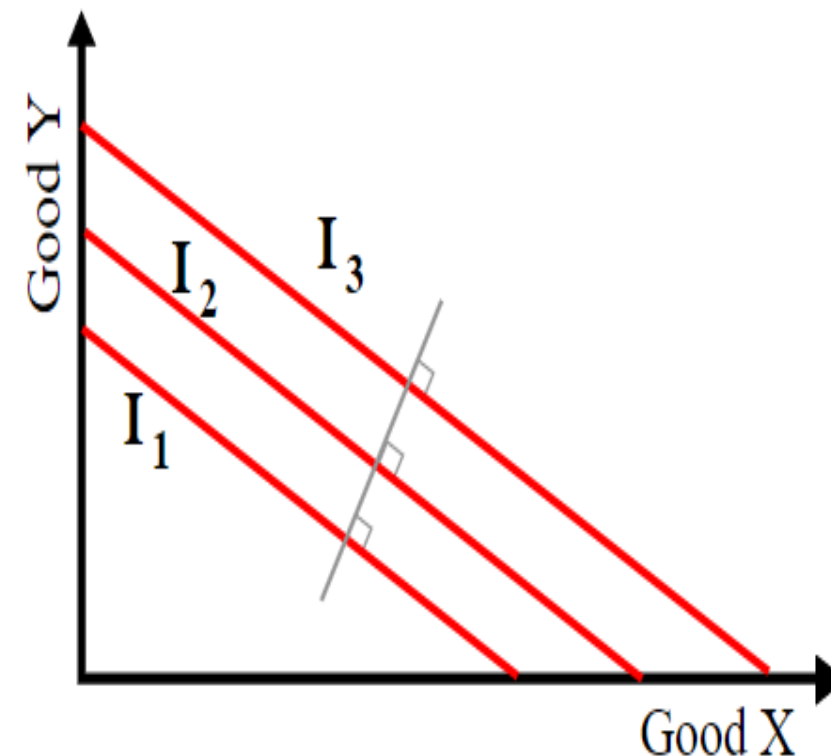
II- Different types of goods -7-

Perfect Substitutes:

- A perfect substitute is a situation where two goods are viewed as identical.
- When products are perfect substitutes, indifference curves will look like the graph. These lines are essentially perfectly straight, and that demonstrates that the relative utility of 'Good X' compared to that of 'Good Y' is equivalent regardless of the amount in question.

Exp: *a one-dollar bill is a perfect substitute for another dollar bill.

*butter from two different producers are all considered perfect substitutes; the producer may be different, but their purpose and usage are the same



Perfect Substitute Indifference Curve: In this particular series of indifference curves it is clear that 'Good X' and 'Good Y' are perfect substitutes for one another. That is to say that the utility of one is identical to the utility of the other across all quantities represented on the map.

II- Different types of goods -8-

II-2-2- Complementary Goods

- **Complementary Good** is one that is utilized in **conjunction** with another good or service.
- When consumed alone, the complimentary product usually has **little or no value**.
- Nonetheless, when combined with another commodity or service, it adds to the entire worth of the bid.
- For the **complementaries**, the **demand for a good decreases** when the **price of a complement to the good goes up**.

Substitute
Goods

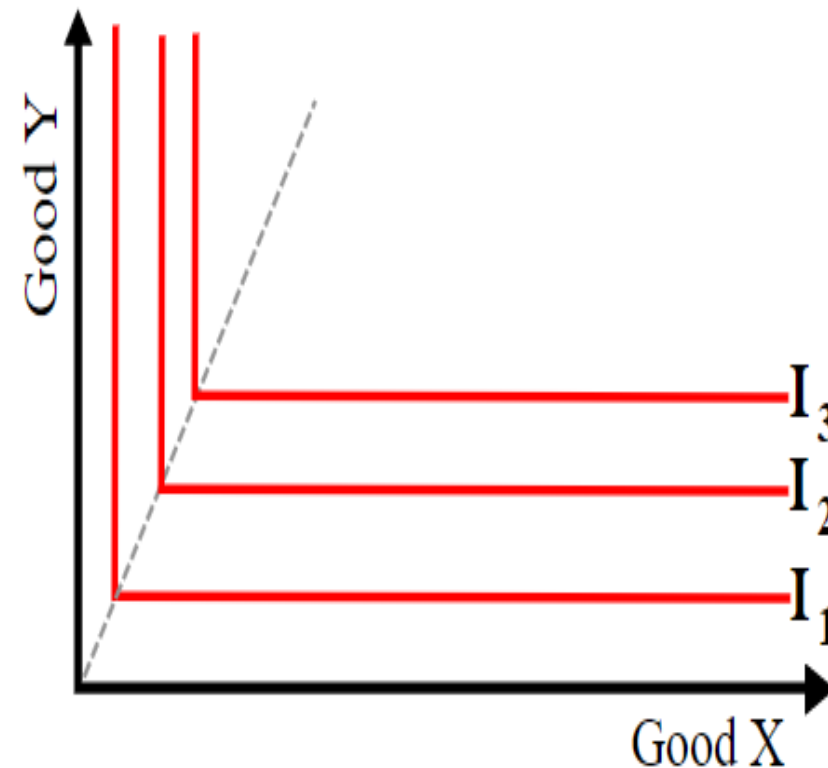
VS

Complementary
Goods

II- Different types of goods -9-

Perfect Complements: The opposite of a perfect substitute is a perfect complement, which is illustrated graphically through curves with perfect right angles at the center. These right angles, and the subsequent straight horizontal and vertical lines, demonstrate that 'Good X' and 'Good Y' are inherently tied to one another and that the consumption of one is dependent upon the consumption of the other.

Exp: Right shoe and left shoe. You need exactly one right shoe with every left shoe.



Perfect Complement Indifference Curve: The perfect right angle in this series of indifference curves implies that the utility of 'Good X' and 'Good Y' are entirely interdependent. This is to say that in order to enjoy one good it is necessary to also have the other.

II- Different types of goods -10-

Complementary Products

- 1- Tennis Balls and Tennis RacketMobile
- 2- Phones and Sim Cards
- 3- Petrol and Cars
- 4- Burger and Burger Buns
- 5- PlayStation and Games
- 6- Movies and Popcorn
- 7- Shoes and Insoles
- 8- Pencils and Notebook

Substitutes Products

1. Butter and margarine
2. 2. Physical books and e-books
3. Satellite television service and cable television service
4. Laptop computers and desktop computers
5. Milkshakes and smoothies
6. Doctors of osteopathy and doctors of medicine
7. Eyeglasses and contact lenses
8. Sandals and flip-flops

EXAMPLE

II- Different types of goods -11-

II-3- Price Relative to Income

- If the **price** of a product is **very high** relative to the consumer's income, the **demand** will tend to be **elastic**.
- If the **price** of a product is **very low** relative to the consumer's income, the **demand** will tend to be **inelastic**.

Substitute
Goods

VS

Complementary
Goods

III- Mapping Preferences with Indifference Curves

III-1- The Indifference Maps

III-2- Implications of Indifference Maps

III- Mapping Preferences with Indifference Curves

-1-

III-1- The Indifference Maps

- Economists mapping consumer preferences use indifference curves to illustrate **series of goods** that represent **equivalent utility**.
- **Consumer preference** varies substantially from individual to individual and market to market, requiring comprehensive economic observation of consumer choices and behaviors.
- These indifference curves, when mapped graphically alongside other curves, is called an **indifference map** that allows us to compare more than two products/services, each specific standard indifference map will be about creating a benchmark between two.



III- Mapping Preferences with Indifference Curves

-2-

For example one could compare relatively similar goods/services (i.e. **apples** vs. **oranges**) or dramatically different goods/services (i.e. **university training** vs. **automobile purchasing**).

These two items being compared represent the **x** and **y** axis of an indifference map.

EXAMPLE

A consumer will always prefer to be on the indifference curve farthest from the origin of the axes, it means the higher one.

III- Mapping Preferences with Indifference Curves

-3-

III-2-Implications of Indifference Maps

- After constructing the required inputs to generate a comprehensive indifference map, an economist can derive conclusions based upon the properties of the illustration.
- In framing these implications it is useful to identify the two potential extremes that can be outlined via with indifference curves.



III- Mapping Preferences with Indifference Curves

-4-

- Combining an understanding of these inputs with the extremes demonstrated an indifference map, economists are able to draw meaningful conclusions regarding consumer choices and purchasing behaviors in the context of two goods.
- **The comparison between the goods demonstrates the relative utility one has compared to another, and the way in which consumers will act when posed with a decision between various products and services.**



MAPS OF INDIFFERENCE CURVES

IV-Impact of Income on Consumer Choices

IV-1- Income from a Consumer Theory Perspective

IV-2- Effects of Income on Different Goods

IV- Impact of Income on Consumer Choices

-1-

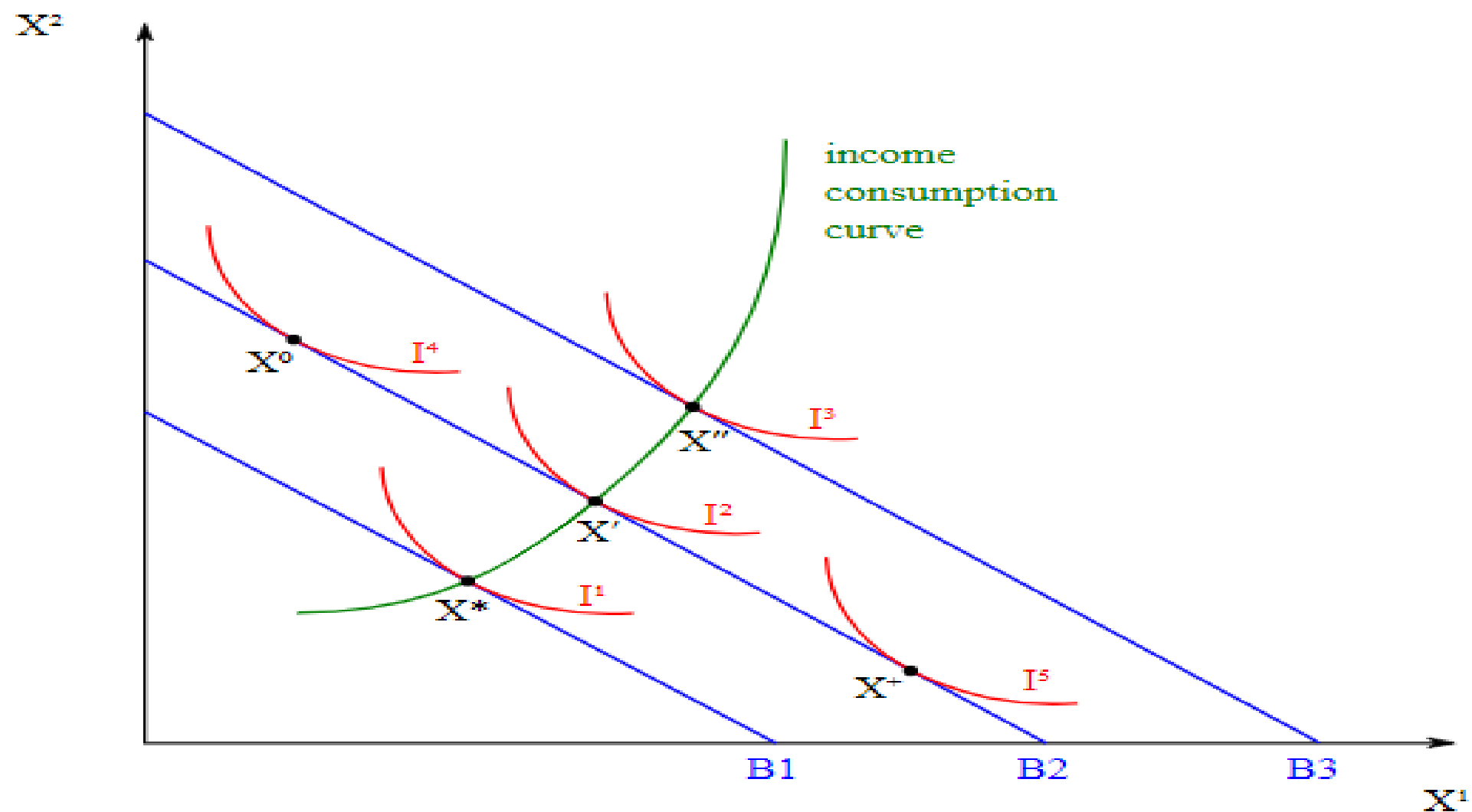
- Consumer choices are predicated on various economic circumstances, and recognizing the relationship between these circumstances and an individual's purchasing behavior allows economists to recognize and predict consumer choice trends.
- One of the **central considerations for a consumer** in deciding upon their purchasing behaviors is their overall **income** or **wage levels**, and thus their **budgetary constraints**.
- These **budgetary constraints**, when applied to a series of products and services, can be optimized to capture the most utility for the consumer based on their purchasing power.



IV-1- Income from a Consumer Theory Perspective

- The simplest way to demonstrate the effects of income on overall consumer choice, from the viewpoint of Consumer Theory, is via an income-consumption curve **for a normal good**.
- The basic premise behind this curve is that the varying income levels (as illustrated by the green income line curving upwards) will determine different quantities and balanced baskets along the provided indifference curves for the two goods being compared in this graph.
- These differences in quantity reflect the increase or decrease in a given individual's purchasing power, thus the income effect could be summarized as the increase in relative utility captured by a consumer with more monetary power.





Income-Consumption Curve: Simply put, increases or decreases in income will alter the optimal quantity (and thus relative utility) of a given basket of goods for a specific consumer.

IV- Impact of Income on Consumer Choices

-4-

- The **wealth effect** differs slightly from the **income effect**.

➡ In fact, the **wealth effect** reflects changes in consumer choice based on **perceived wealth**, not actual income.

For example, if a person owns a stock that appreciates in price, they perceive that they are wealthier and may spend more, even though they have not realized those gains so their income has not increased.



IV- Impact of Income on Consumer Choices

-5-

III-2- Effects of Income on Different Goods

- **Income effects** on consumer choice grow more complex as the type of good changes, as different product and services demonstrate different properties relative to both other products/services and a consumers preferences and utility.
- As a result, it is useful to outline **the differences in income effects** on **normal**, **inferior**, **complementary** and **substitute** goods.



III- Impact of Income on Consumer Choices

-6-

Normal good

A normal good is a good with incremental increases or decreases in utility as quantity changes, demonstrating a predictable and simple linear relationship as income increases or decreases. demonstrates a graphical representation of the effects of income changes upon preference map.

Inferior good

Inferior goods, or goods that are less preferable, will demonstrate inverse relationships with income compared to normal goods.

- That is to say that an increase in income will not necessarily result in an increase in quantity for the inferior good, as the consumer derives minimal utility in purchasing the inferior good compared to other goods.
- Inferior goods are often sacrificed as income rises and consumers gain more choice/options.
- This can be represented in.

Normal
Goods

VS

Inferior
Goods

III- Impact of Income on Consumer Choices

-7-

	Normal Good	Inferior Good
Increase in Income	Increased Demand	Decreased Demand
Decrease in Income	Decreased Demand	Increased Demand

Normal
Goods

VS

Inferior
Goods

III- Impact of Income on Consumer Choices

-8-

Complementary goods

Complementary goods are goods that are interdependent in consumption, or essentially goods that require simultaneous consumption by the consumer. An example of this would be like purchasing an automobile and car insurance, the consumption of one requires the consumption of the other. As income increases, these will increase relative to one another (as a ratio). demonstrates this concept in graphical form.

Substitutes goods

Perfect substitutes are essentially interchangeable goods, where the consumption of one compared to another has no meaningful impact on the consumer's utility derived.

Substitutes are goods that a consumer cannot differentiate between in terms of the need being filled and the satisfaction obtained.

Income increases will thus affect the consumption of these goods interchangeably, resulting in increase in the quantity of either or both.

Substitute Goods

VS

Complementary Goods

III- Impact of Income on Consumer Choices

-9-

	Complement	Substitute
Increase in Price	Decreased Demand	Increased Demand
Decrease in Price	Increased Demand	Decreased Demand

Substitute
Goods

VS

Complementary
Goods

IV- Impact of Income on Consumer Choices

-10-

- In merging Consumer Theory and consumer choices with income level, the primary takeaway is that an increase in income will increase the prospective utility that consumer can acquire in the market.
- Understanding how this applies in a general fashion, alongside the specific circumstances dictating specific types of goods, it becomes fairly straight-forward to predict consumer purchasing behaviors at differing income levels.



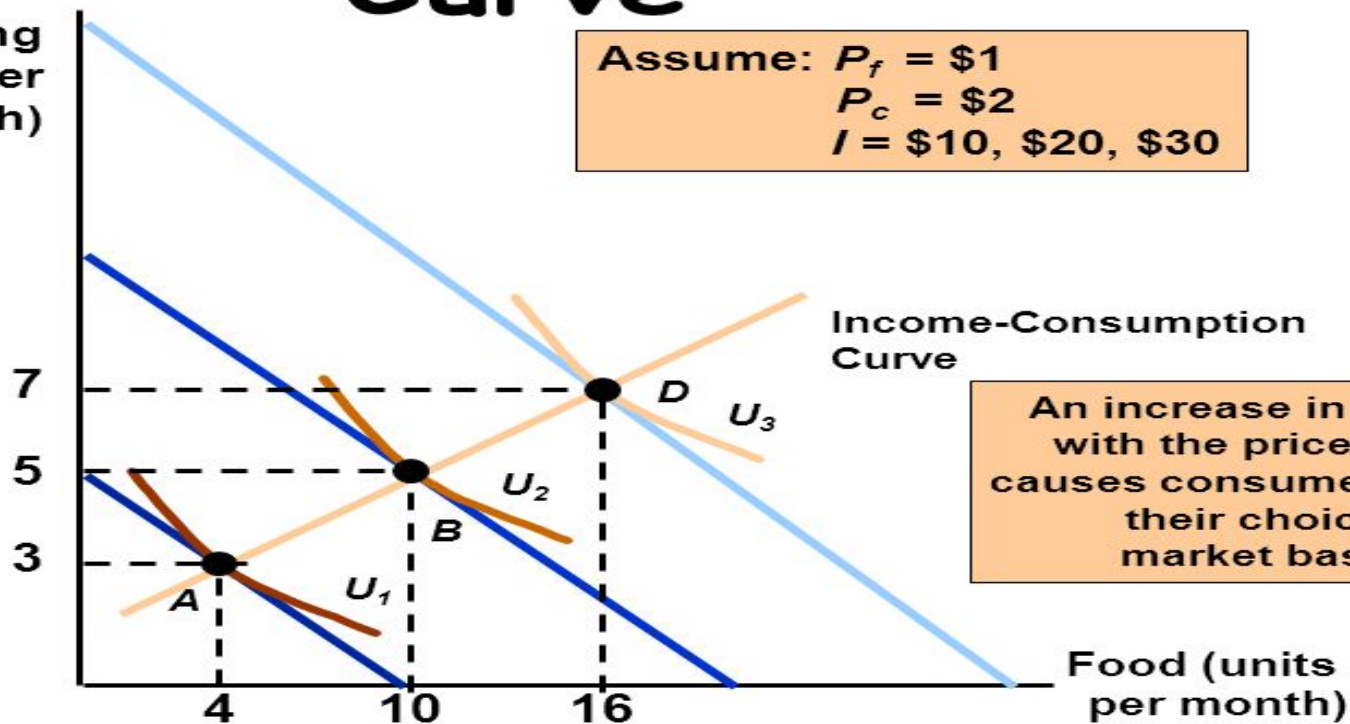
IV- Impact of Income on Consumer Choices

-11-

Income Consumption Curve

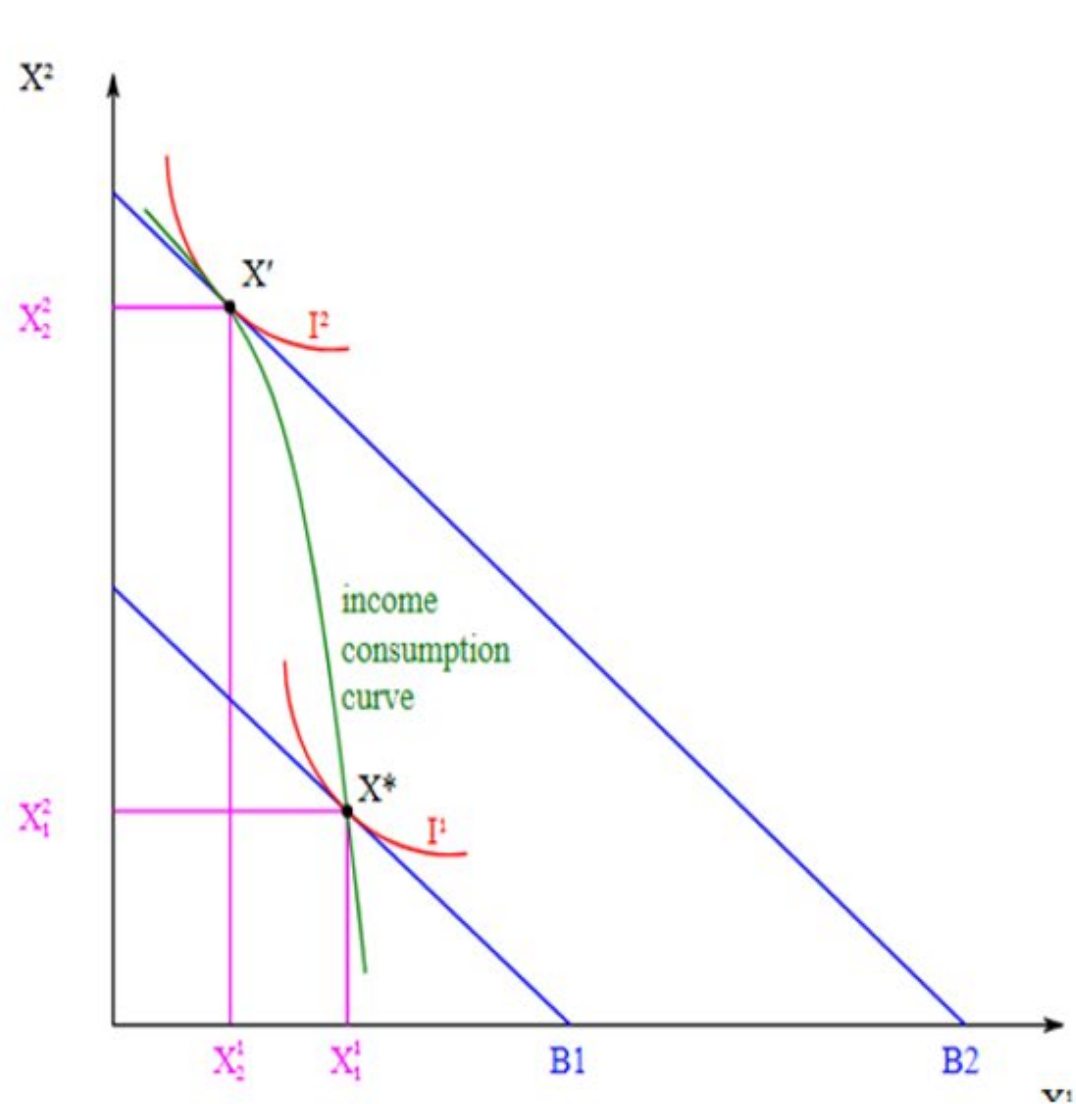
Clothing
(units per month)

Assume: $P_f = \$1$
 $P_c = \$2$
 $I = \$10, \$20, \$30$

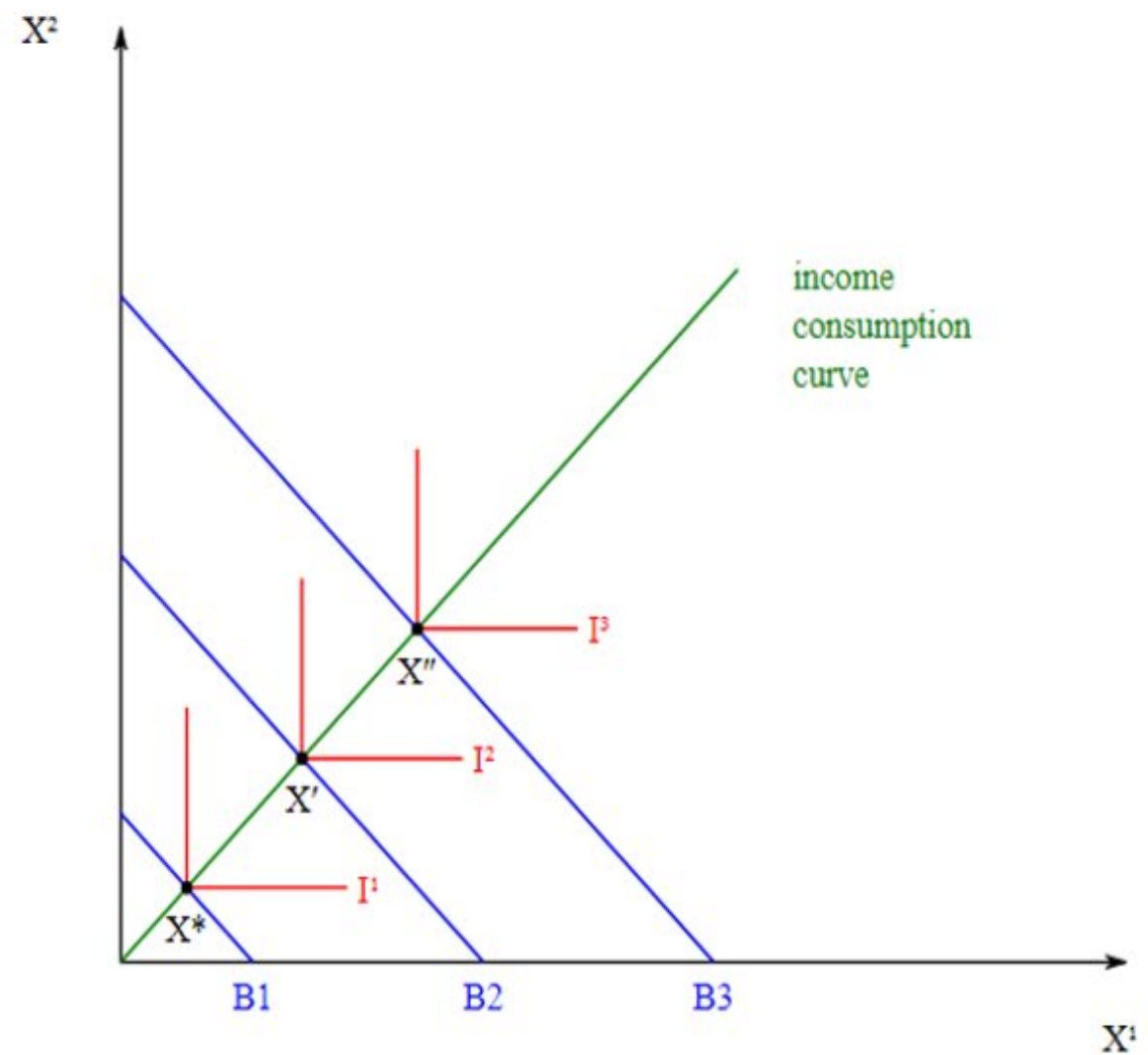


An increase in income, with the prices fixed, causes consumers to alter their choice of market basket.





Income Levels and Inferior Goods: This graph demonstrates the inverse relationship between income and the consumption of inferior goods. As income rises, the quantity consumed of ' X_1 ' decreases. This illustrates increased variance in consumer choice as income rises



Income Effect on Complementary Goods: In this graphical depiction of income increases, the consumption of these two goods are complementary and thus interdependent.

V- Impact of Price on Consumer Choices

V-1- Deriving Overall Demand

V-2- Price Elasticity

V- Impact of Price on Consumer Choices

-1-

- The demand curve shows how consumer choices respond to changes in price.
- In almost all cases, consumer choices are driven by prices: As price goes up, the quantity that consumers demand goes down.
- This correlation between the price of goods and the willingness to make purchases is represented clearly by ***the generation of a demand curve*** (with price as the y-axis and quantity as the x-axis).
- The construction of demand, which shows exactly how much of a good consumers will purchase at a given price, is defining of consumer choice theory.



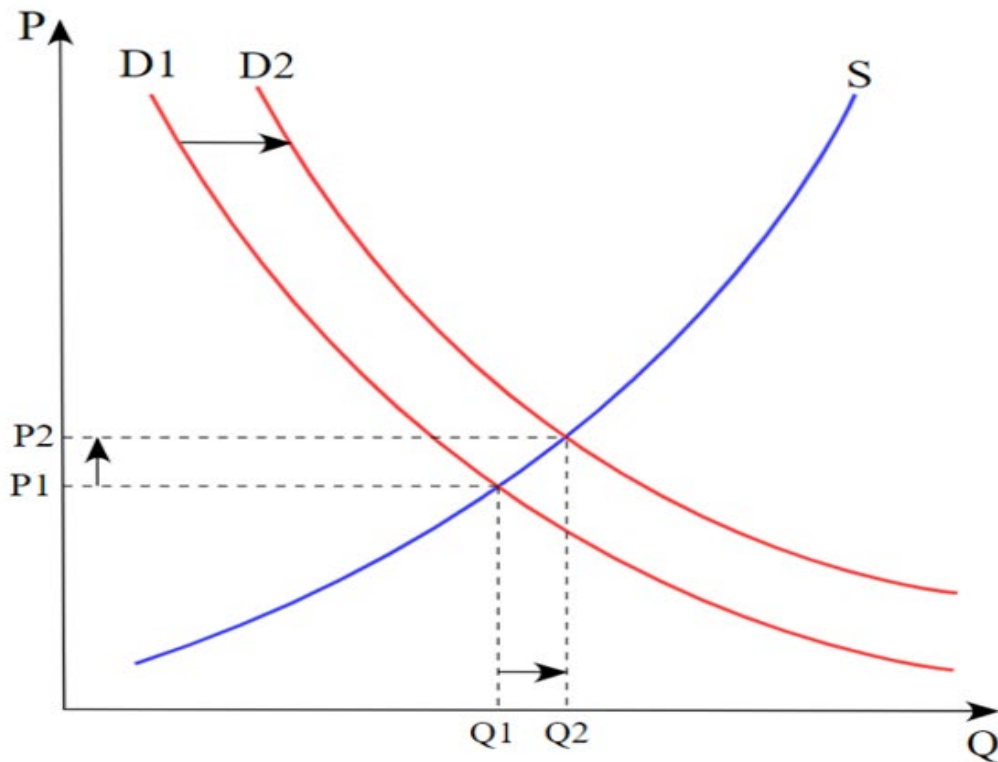
V- Impact of Price on Consumer Choices-2-

V-1- Deriving Overall Demand

- The generation of a demand curve is done by calculating what price consumers are willing to pay for a given quantity of a good or service.
- **For normal goods or services**, demand is illustrated with a downward sloping curve, where the quantity on the x-axis will generally increase as the price on the y-axis decreases (and vice versa).
- The quantity demanded may change in response to both to shifts in demand (and the creation of a new demand curve, as demonstrated in) and movements along the established demand curve.



V- Impact of Price on Consumer Choices-3-



As the demand curve implies, price is often the central driving force behind a decision to purchase a given product or service. Consumers must weigh the overall utility they can capture by making a purchase and benchmark that against their overall monetary resources to optimize their purchasing decisions.



Demand Shifts: This graph demonstrates a shift in overall demand in the market, where the generation of a new parallel demand curve is required to accurately represent consumer choices.

V- Impact of Price on Consumer Choices -4-

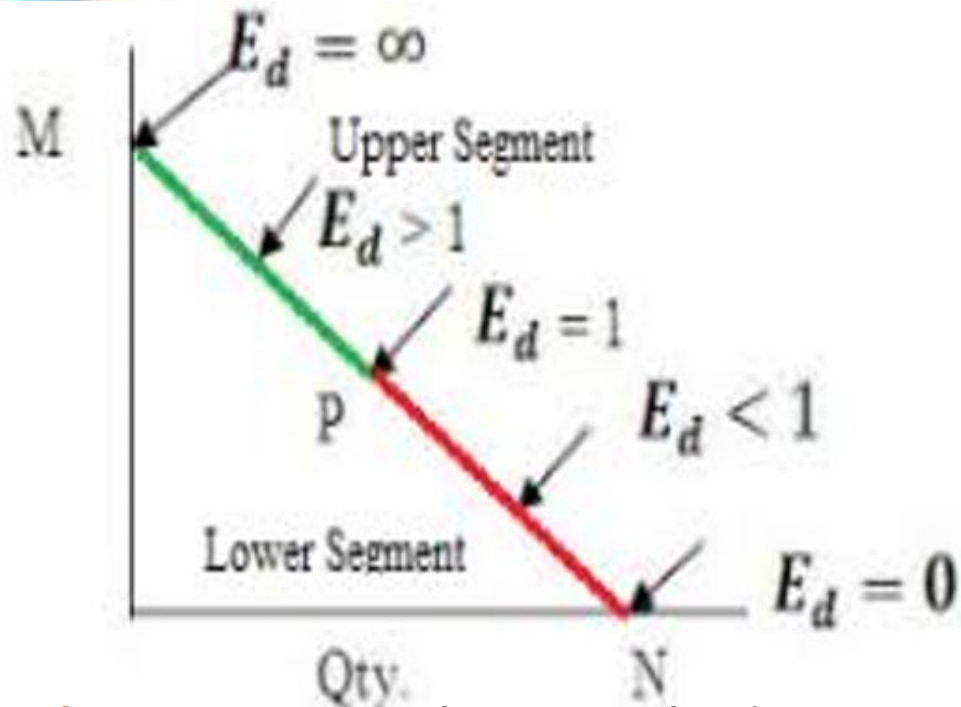
V-2- Price Elasticity

- A critical consideration of product/service pricing is the price elasticity of a given good, which indicates how responsive demand is to a change in price.
- Price elasticity is essentially a measurement of how much any deviations in price will drive the overall quantity purchased up or down, underlining to what extent consumer purchasing decisions will be dictated by pricing.
- A highly elastic good will see consumers much less likely to purchase when prices are high and much more likely to purchase when prices are low, while a good with low elasticity will see consumers purchasing the same quantity regardless of small price changes.



Lecture

4



Using demand curves, economists can project the impact of a price change on the consumer choices in a given market.

Price Elasticity: As this graph demonstrates, **the slope of the demand curve** will vary as a direct result of **how elastic consumer purchasing behaviors will be compared to price changes.**

Review

Summary

Budget Set:

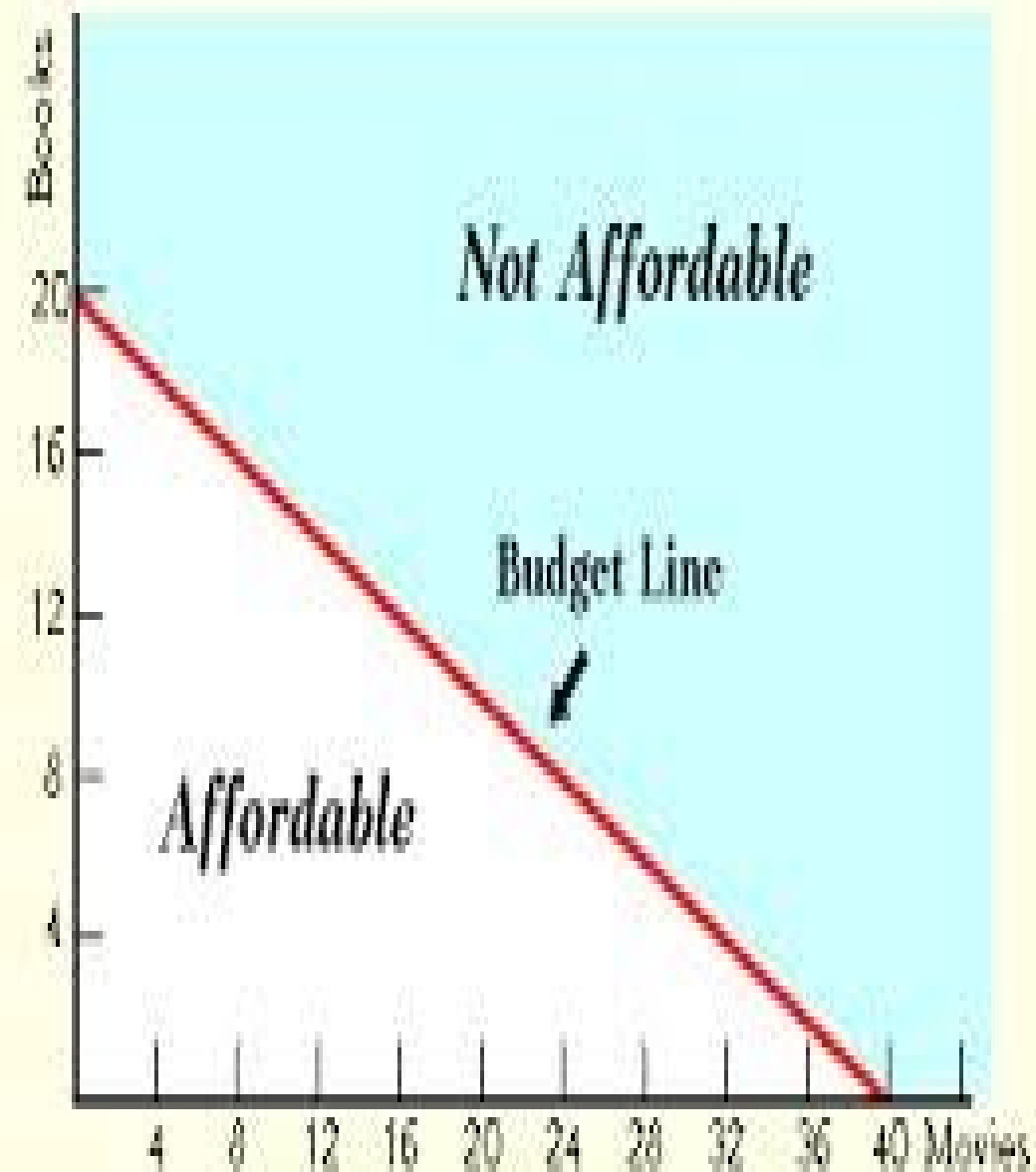
- The set of baskets that are affordable

Budget Constraint:

- The set of baskets that the consumer may purchase given the limits of the available income.

Budget Line:

- The set of baskets that one can purchase when spending all available income.



A budget line separates what is affordable from what is not affordable

$$P_x X + P_y Y = I$$

BUDGET LINE BUDGET SET

BUDGET LINE

- It refers to the graphical representation of all possible combinations of 2 goods the expenditure on which is exactly **EQUAL** to the income of the consumer at given prices.

BUDGET SET

- It refers to the graphical representation of all possible combinations of 2 goods the expenditure on which is **EQUAL** to or **LESS THAN** the income of the consumer at given prices.

Budget Line
and
Budget Set

Indifference Curves

Indifference Maps

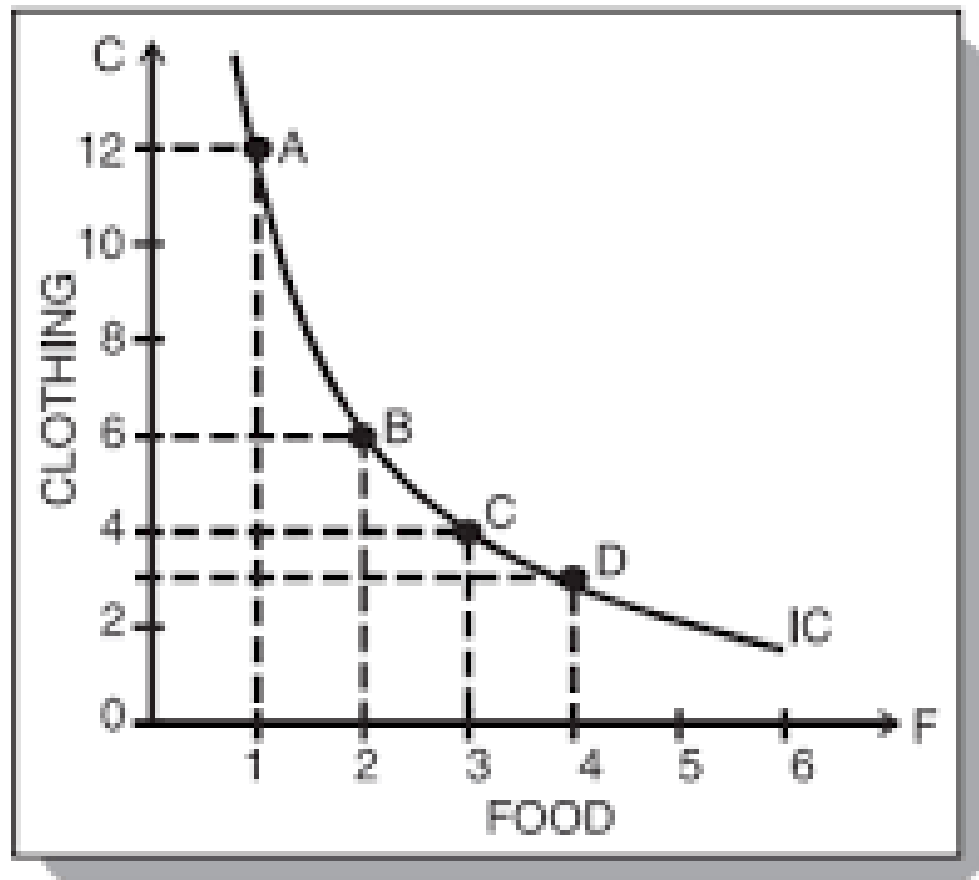


Fig. 1 : A Consumer's Indifference Curve

An Indifference Map

• Figure A.2 An Indifference Map

Number of
Movies
per Month

20

1 Max prefers any point on
this indifference curve...

3 And any point on this curve
is preferred to any point on
the other two.

2 to any point
on this one

11

6

1

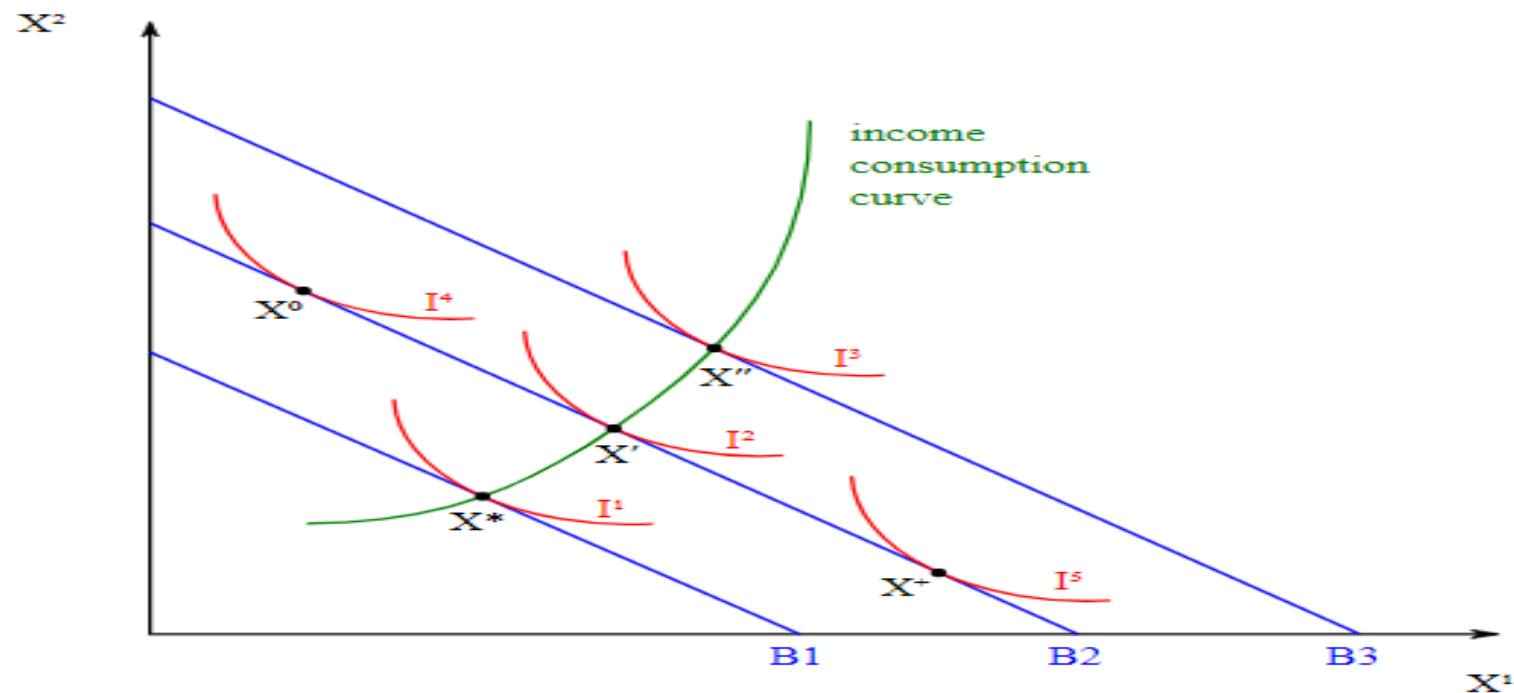
2

3

Number of Concerts
per Month

11

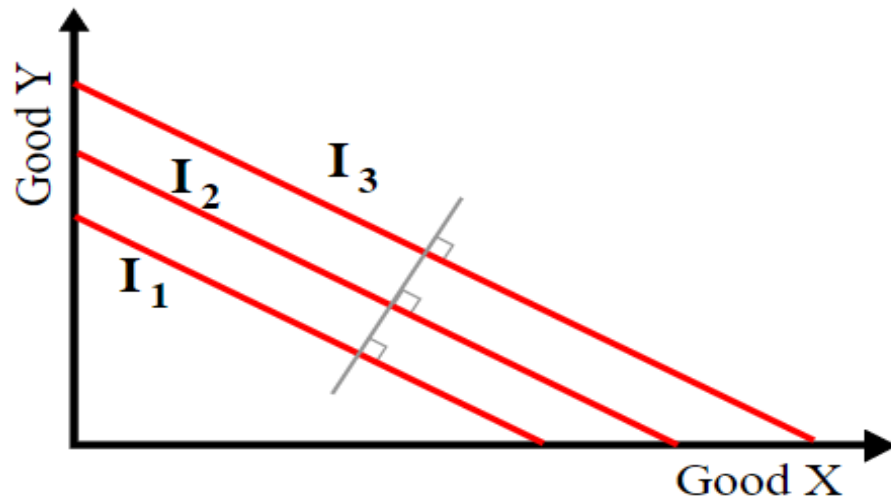
Income-consumption Curve



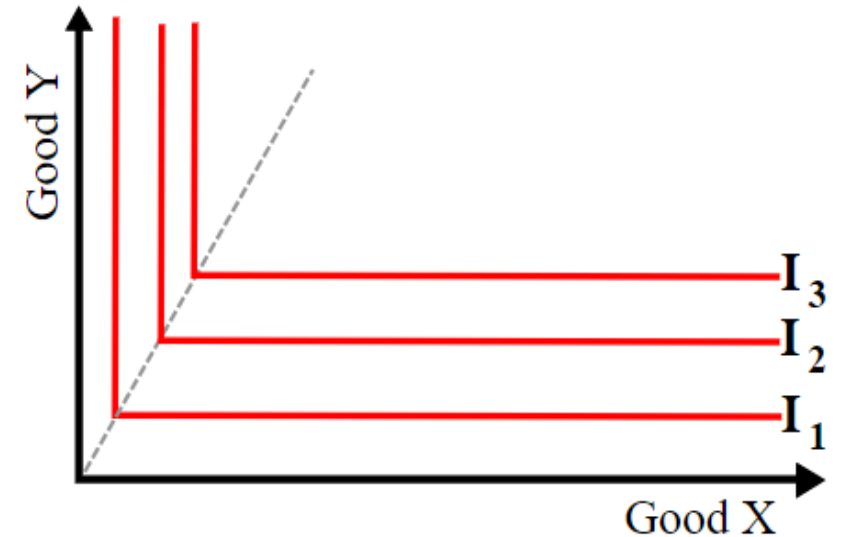
Income-Consumption Curve: Simply put, increases or decreases in income will alter the optimal quantity (and thus relative utility) of a given basket of goods for a specific consumer.

Perfect Substitute Indifference Curve

Perfect Complement Indifference Curve



Perfect Substitute Indifference Curve: In this particular series of indifference curves it is clear that 'Good X' and 'Good Y' are perfect substitutes for one another. That is to say that the utility of one is identical to the utility of the other across all quantities represented on the map.



Perfect Complement Indifference Curve: The perfect right angle in this series of indifference curves implies that the utility of 'Good X' and 'Good Y' are entirely interdependent. This is to say that in order to enjoy one good it is necessary to also have the other.

Good bye

