

Class: SY BSc

Subject : Business Economics – Micro

Chapter: Unit 2 Chp 3

Chapter Name: Consumer behaviour

Today's Agenda

1. Utility
 1. Features of utility
 2. Total utility
 3. Marginal utility
 4. Total utility & Marginal utility
2. Law of diminishing marginal utility
 1. Assumptions
 2. Exceptions
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 4. Significance of law
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5. Indifference curve
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 3. Indifference map
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7. Income consumption curve
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Today's Agenda

- 8. Attitudes towards risk and uncertainty
- 8. Insurance – A way of removing risks
- 8. Behavioural economics
 - 1. Limits
 - 2. Implication for economic policy

1 Utility



What do you understand by the term utility?
Could you state some real-life examples?

To understand utility we will first have to understand who is a rational consumer?

Economists use it to refer a person who attempts to get the best value for money from their purchases, given a limited income. Thus the rational consumer tries to ensure that the benefits of a purchase are worth the expense.

1 Utility



The total satisfaction or benefit derived from consuming a good or service.

- Utility – Usefulness
- Consumption of goods and services depends on utility.
- Every product possesses power to satisfy human wants.
- This inner quality of a commodity which satisfies human wants is called as utility.



1.1 Features of Utility

1. Relative concept

Utility of a commodity changes from time to time and place to place

Example – Visiting Goa has more utility in summer than in winter/monsoon

2. Subjective concept

Utility is a subjective concept as the utility of a commodity differs from person to person on account of differences in tastes, preference, habits, surroundings, age, occupation etc.

Example – Chalk has utility for teachers and not for doctors. Fish has utility for non vegetarian person etc.

3. Ethically Neutral

Example – A gun has utility for a soldier as well as a terrorist.

1.1 Features of Utility

4. Utility differs from Usefulness

Example – Cigarette and liquor are harmful to health, but if they satisfy the want of an addict then they have utility for him.

5. Utility differs from pleasure

Example – A textbook has utility for a student but he may not derive pleasure from reading it.

6. Measurement of Utility is Hypothetical

Example – It cannot be said that “Red Velvet” Cake has 5 utility and “Chocolate” Cake has 10 utility.

7. Utility is Multi-purpose

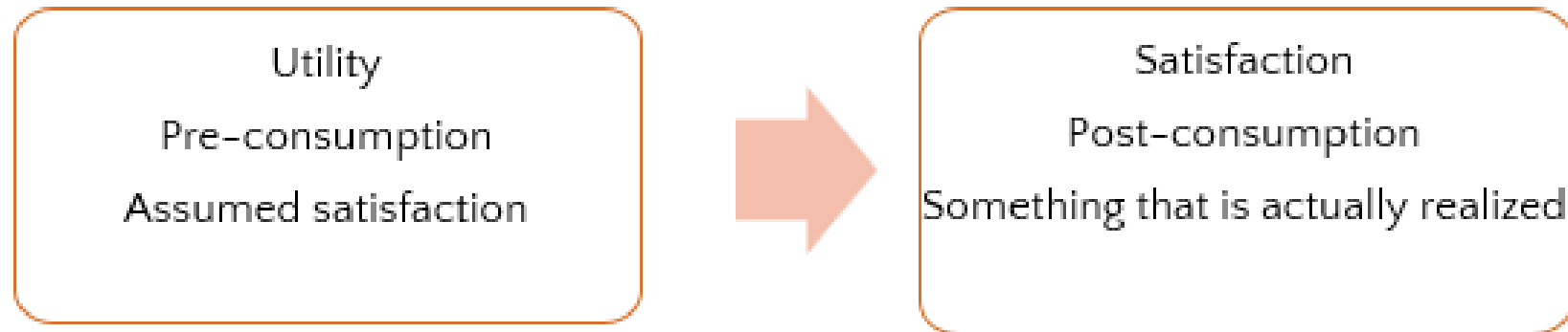
Example – Electricity has multiple use.

1.1 Features of Utility

8. Utility differs from satisfaction

Utility is pre-consumption and satisfaction is post-consumption.

Utility is assumed satisfaction but satisfaction is something that is actually realized.



9. Utility depends upon the intensity of wants

Example – The utility of notes is higher when exams are closer as the want for notes is intense.

1.1 Features of Utility

Utils

- A hypothetical unit of measurement of utility that is commonly used by economists to present hypothetical information about utility and consumer demand theory.
- The term util is a convenient way to discuss utility and the satisfaction of wants and needs that consumers obtain from using a good.
- The util measurement unit was developed as a convenient way to illustrate and discuss concepts such as total utility, marginal utility, and the law of diminishing marginal utility.



1.1 Features of Utility

10. Utility is basis for Demand

Example – An uneducated person will not demand a book as it has no utility for him. A student will demand a book as it has utility for him.

1.2 Total Utility



Total utility (TU) is the total satisfaction a person gains from all those units of a commodity consumed within a given time period.

Example - If Lucy drinks 10 cups of tea a day, her daily total utility from tea is the satisfaction derived from those 10 cups.

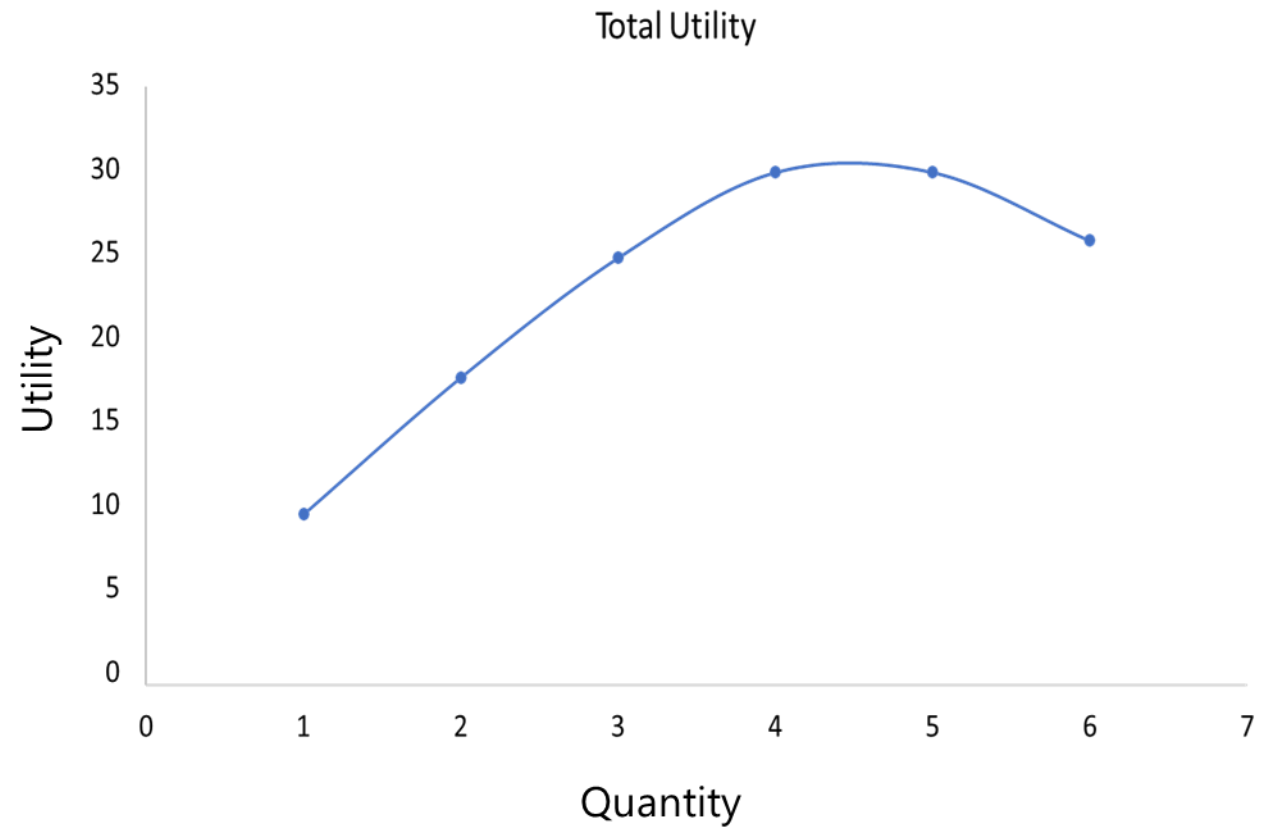
1.2 Total Utility



What will be the shape of the total utility graph with quantity consumed on X-axis and utility on Y-axis?

1.2 Total Utility

Quantity (Piece)	Total Utility
1	10
2	18
3	25
4	30
5	30
6	26



1.3 Marginal Utility



Marginal utility (MU) is the additional satisfaction gained from consuming one extra unit within a given period of time.

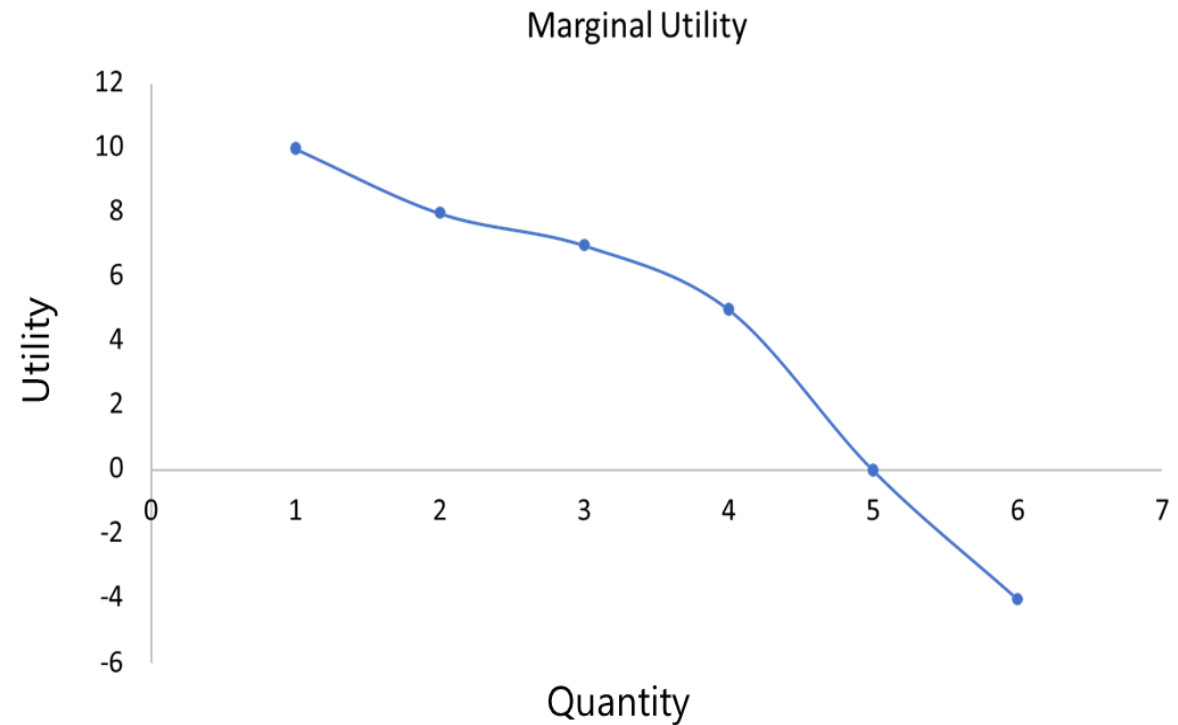
1.3 Marginal Utility



What will be the shape of the marginal utility graph with quantity consumed on X-axis and utility on Y-axis?

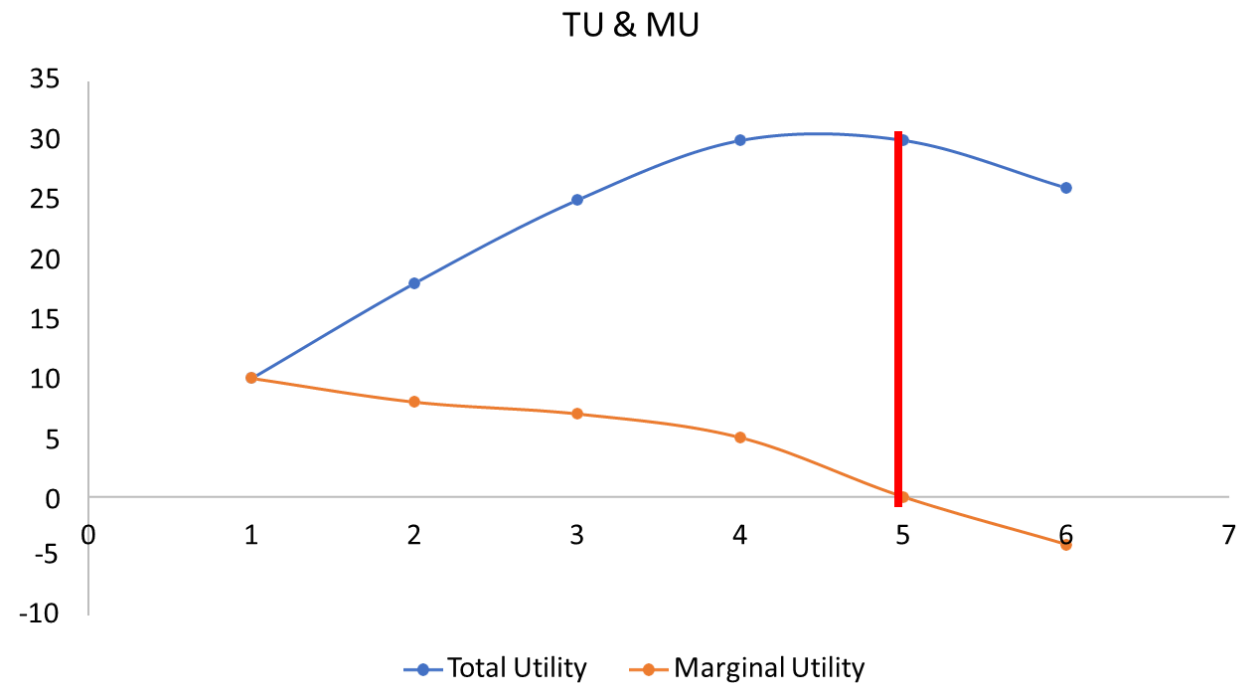
1.3 Marginal Utility

Quantity (Piece)	Total Utility	Marginal Utility
1	10	10
2	18	8 (18-10)
3	25	7 (25-18)
4	30	5 (30-25)
5	30	0 (30-30)
6	26	-4 (26-30)



1.4 Total Utility & Marginal Utility

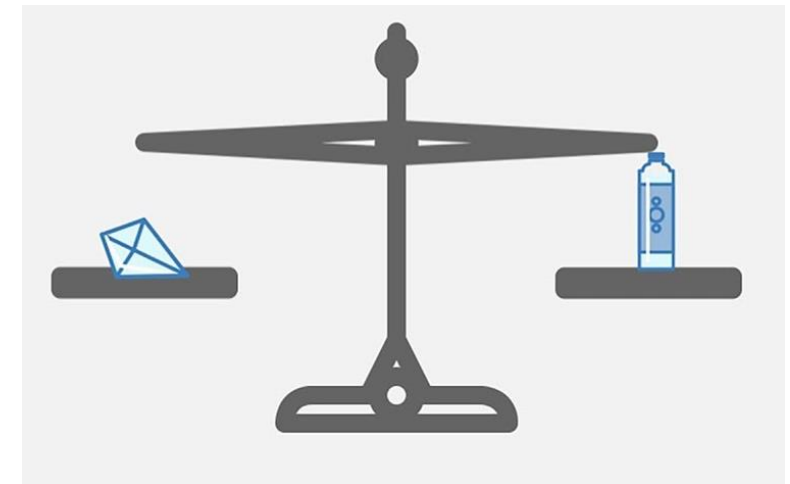
Quantity (Piece)	Total Utility	Marginal Utility
1	10	10
2	18	8
3	25	7
4	30	5
5	30	0
6	26	-4



1.4 Total Utility & Marginal Utility

Diamond-Water paradox (Paradox of value)

- The diamond-water paradox (also known as the paradox of value) is the contradiction that, although water is on the whole more useful, in terms of survival, than diamonds, diamonds command a higher price in the market.
- Adam Smith in the 1760s gave the example of water and diamonds. 'How is it', he asked, 'that water which is so essential to human life, and thus has such a high "value-in-use", has such a low market value (or "value-in-exchange")? And how is it that diamonds which are relatively so trivial have such a high market value?'



2

Law of Diminishing Marginal Utility



Alfred Marshal later on restated this law in the following words: “The additional benefit which a person derives from an increase of his stock of a thing diminishes with every increase in the stock that already has”.

The more of a commodity you consume, the greater will be your total utility. However, as you become more satisfied, each extra unit that you consume will probably give you less additional utility than previous units. In other words, your marginal utility falls, the more you consume.

2.1 Assumptions

1. Reasonability

- A thirsty person will consume a glass of water and not a jar of water. Similarly, he will not consume water in a teaspoon.

2. Cardinal Measurement

- Utility is a psychological concept and therefore it is not measurable cardinally i.e. it can be expressed in numbers.

3. Homogeneity

- If the commodity being consumed is a Cadbury Dairy Milk, then all the other units consumed also should be Cadbury Dairy Milk only. The consumer cannot change to Dairy Milk Silk.

4. Single Want

- It is assumed that the commodity is used to satisfy only a Particular want.

2.1 Assumptions

5. Divisible

- If the commodity being consumed is a Cake, then Cake should be divisible in small parts

6. Constancy

- If the commodity being consumed is a Cake, then Cake should be divisible in small parts

7. Continuity

- After one unit of the commodity is consumed, the consumer cannot consume the next unit of the commodity after 2-3 hours or the next day. The consumption should be back to back.

2.2 Exceptions

1. Money

- Money does not have a single use and therefore it violates one of the basic assumptions of the law.
- Secondly, the MU of money for a rich person reduces as his stock of money (bank balance) keeps increasing.
- It may be noted that the TU of money can never decrease and hence MU of money cannot be zero or negative. Even the richest person will never have zero or negative utility of money

2. Addiction

- The MU of Addiction keeps increasing as a Addicted person keeps having more of it.
- However, the Addicted person cannot be considered to be rational. The assumption of rationality is violated

2.2 Exceptions

3. Hobbies

- A person having a hobby gets more pleasure when he collects more of it. In other words, the MU keeps increasing. Hence it can be said to be an exception to the law.
- However, the person does not collect the same thing and the assumption of homogeneity & Continuity is violated.

4. Misers

- The MU of money increases for a miser as the stock keeps increasing.
- However, even here, the assumption of rationality is violated

5. Power

- A person who has power / influence, keeps wanting more of it. The MU of power keeps increasing as the person continues to get more power. The greed for power does not end.
- But assumption of rationality is violated.

2.3 Criticisms

- Unrealistic Assumptions
- Cardinal Measurement
- Indivisible Goods
- Constant Marginal Utility of Money
- A single Want

2.4 Significance of law

- Useful to consumer
- Useful to Government
- Basis of paradox of value
- Basis of law of demand

2.5 Inference

- $MU > P$ = Intra marginal units
- $MU = P$ = Consumer's equilibrium
- $MU < P$ = Extra marginal units

where MU is marginal utility and P is price

3 Consumer surplus



The excess of what a person would have been prepared to pay for a good (i.e. the utility) over what that person actually pays.

Marginal consumer surplus (MCS) is the difference between what you are willing to pay for one more unit of a good and what you are actually charged. If Ollie were willing to pay 45p for another packet of crisps which in fact only cost him 40p, he would be getting a marginal consumer surplus of 5p.

Total consumer surplus (TCS) is the sum of all the marginal consumer surpluses that you have obtained from all the units of a good you have consumed. It is the difference between the total utility from all the units and your expenditure on them. If Ollie consumes four packets of crisps, and if he would have been prepared to spend £2.60 on them and only had to spend £2.20, then his total consumer surplus is 40p.



Questions

1. You'd be willing to pay \$200 for a daylong admission ticket to a theme park. The cost of the ticket is \$120. Your consumer surplus is:

- a. \$0
- b. \$80
- c. \$120
- d. \$320

2. A limited edition package is sold only to 200 customers for \$130 each. The average value of the package for the 200 customers is \$280. What is the total consumer surplus?

- a. \$150
- b. \$15,000
- c. \$30,000
- d. \$150,000

3.1 Rational consumer behavior to maximize Consumer surplus

People will go on purchasing additional units as long as they gain additional consumer surplus: in other words, as long as the price they are prepared to pay exceeds the price they are charged (**MU > P**). But as more is purchased, so they will experience diminishing marginal utility. They will be prepared to pay less for each additional unit.

Their marginal utility will go on falling until $MU = P$: i.e. until no further consumer surplus can be gained. At that point, they will stop purchasing additional units. Their optimum level of consumption has been reached: consumer surplus has been maximized.

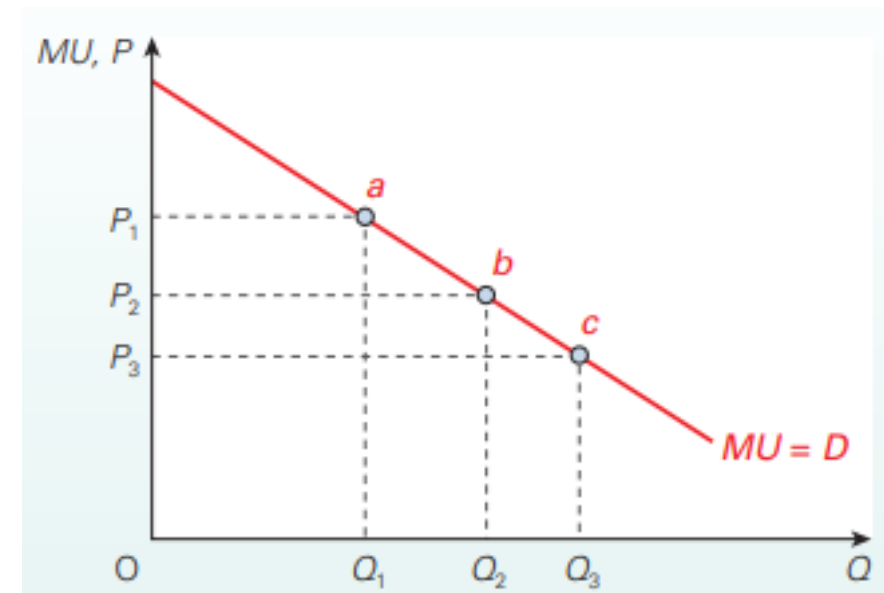
If they continue to purchase beyond this point, MU would be less than P, and thus they would be paying more for the last units than they were worth to them

4

Marginal utility & Demand curve

An individual's demand curve

- Individual people's demand curve for any good will be the same as their marginal utility curve for that good, where utility is measured in money.
- The figure shows the marginal utility curve for a particular person and a particular good. If the price of the good were P_1 , the person would consume Q_1 , where $MU = P_1$.
- If the price fell to P_2 , consumption would rise to Q_2 , since this is where $MU = P_2$.
- If price fell to P_3 , Q_3 would be consumed.
- Thus as long as individuals seek to maximize consumer surplus and hence consume where $P = MU$, their demand curve will be along the same line as their marginal utility curve.



4

Marginal utility & Demand curve

The market demand curve

The market demand curve will simply be the (horizontal) sum of all individuals' demand curves and hence MU curves.

- The shape of the demand curve

The price elasticity of demand will reflect the rate at which MU diminishes. If there are close substitutes for a good, it is likely to have an elastic demand, and its MU will diminish slowly as consumption increases. The reason is that increased consumption of this product will be accompanied by decreased consumption of the alternative product(s). Since total consumption of this product plus the alternatives has increased only slightly (if at all), the marginal utility will fall only slowly.

4

Marginal utility & Demand curve



How do shifts in demand relate to marginal utility?

For example, how would the marginal utility of (and hence demand for) tea be affected by a rise in the price of coffee?

The higher price of coffee would cause less coffee to be consumed. This would increase the marginal utility of tea since if people are drinking less coffee, their desire for tea is higher. The MU curve (and hence the demand curve) for tea thus shifts to the right.

4.1 Equi – marginal utility

Equi-marginal principle states that a consumer will get the highest utility from a given level of income when the ratio of the marginal utilities is equal to the ratio of the prices.

Algebraically, this is when, for any pair of goods, A and B, that are consumed:



$$\frac{MU_A}{MU_B} = \frac{P_A}{P_B}$$

5

Optimum consumption with intertemporal choice

In standard economic theory it is assumed that most people are impatient most of the time. They would prefer to consume the things they like immediately rather than having to wait until a later date. They would also prefer to delay any costs until later: i.e. paying for goods using a credit card.

To capture this impatience, standard economic theory uses a method of weighting future costs and benefits. It is called exponential discounting and multiplies any costs and benefits that occur in the future by a fraction of less than one to adjust them to what they are worth to the person immediately: i.e. their present value. This fraction is called the discount factor.



What is exponential discounting ?

A method of reducing future benefits and costs to a present value. The discount rate depends on just how much less, from the consumer's perspective, future utility and costs (from a decision made today) are than gaining the utility/incurring the costs today.

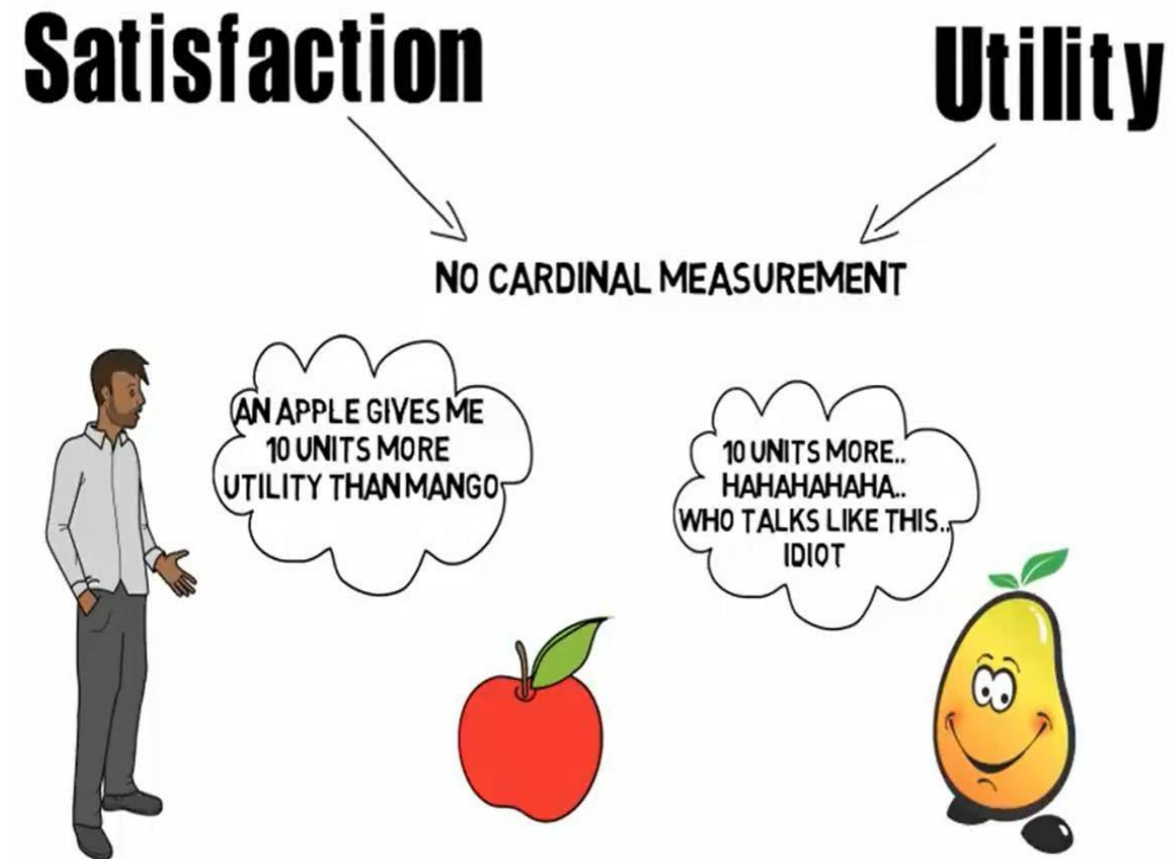
6 Indifference curve



What do you understand by the term indifference curve?
Form your answers based on utility and satisfaction

6 Indifference curve

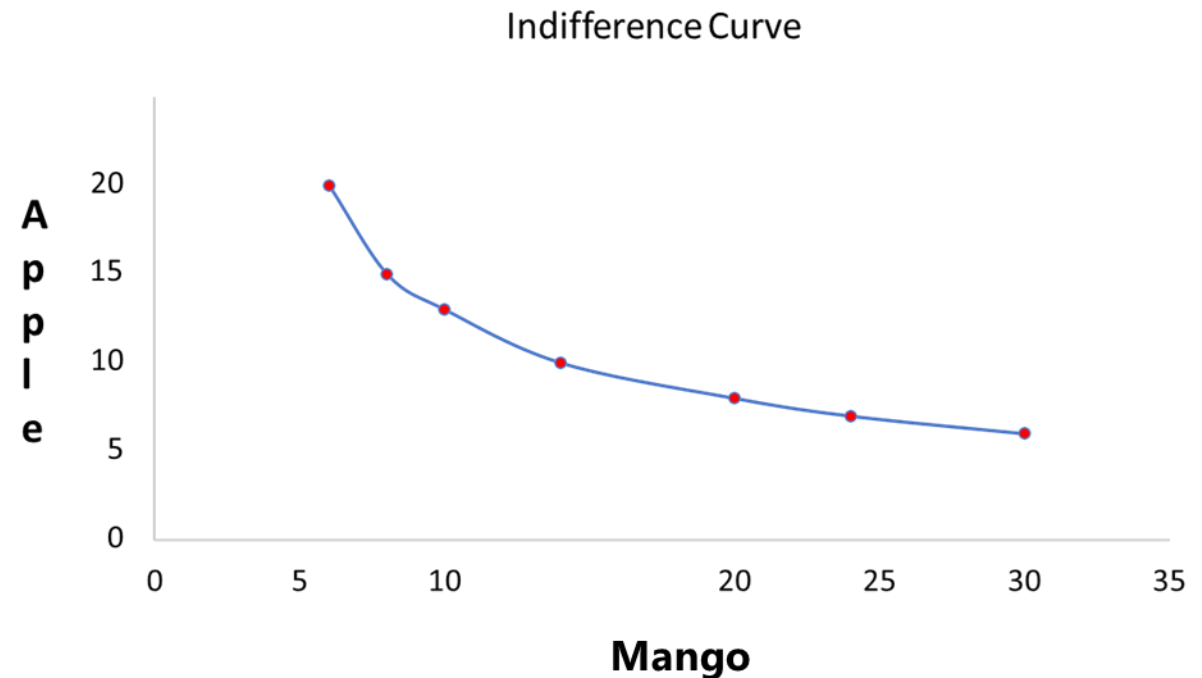
- To understand this the concept of Indifference analysis, utility & satisfaction is a base
- There is no tool of measurement of utility & satisfaction but for the sake of understanding we can give cardinal measurement to utility
- Assumption - Utility can be measured in cardinal terms (in numbers)



6 Indifference curve

Example – Dr. Strange go to super mart with 500 rupees & decided to purchase fruit where he wants to buy combination of apples & mangoes & try to maximizes the utility

	Apple	Mango
Combination 1	30	6
Combination 2	24	7
Combination 3	20	8
Combination 4	14	10
Combination 5	10	13
Combination 6	8	15
Combination 7	6	20



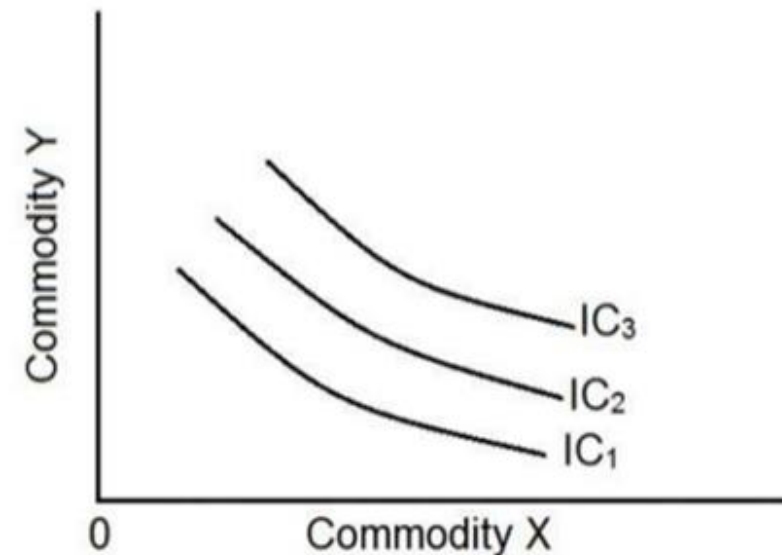
6

Indifference curve

What is Indifference curve?

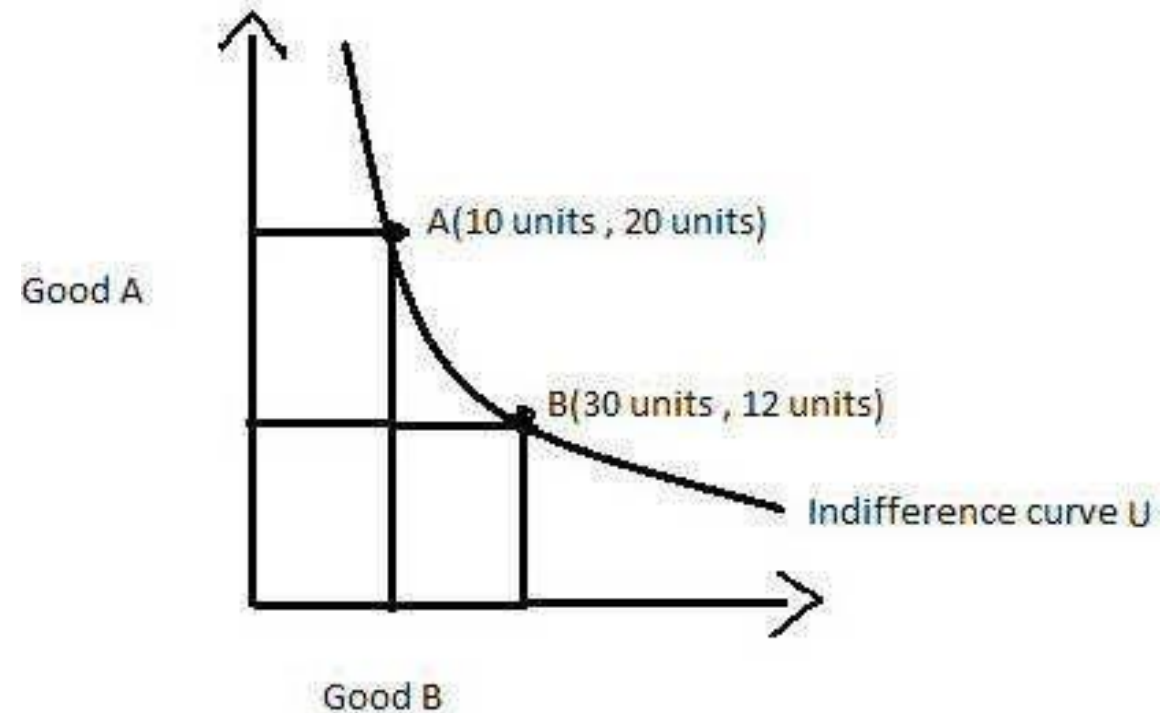
- An indifference curve is a graph that shows a combination of two goods that give a consumer equal satisfaction and utility, thereby making the consumer indifferent.
- The aim of indifference analysis, then, is to analyse, without having to measure utility, how a rational consumer chooses between two goods.

INDIFFERENCE CURVE



6.1 Marginal rate of substitution

- Every point on indifference curve shows different combination of goods
- Marginal rate of substitution (MRS) (between two goods in consumption) is the amount of one good (B) that a consumer is prepared to give up in order to obtain one extra unit of another good (A). (that is, the rate at which the consumer is willing to substitute one good for the other).



6.1 Marginal rate of substitution

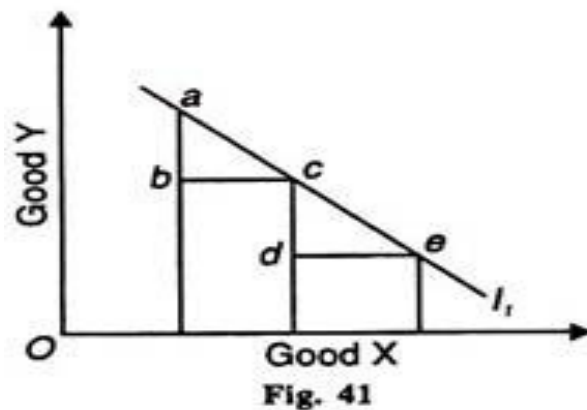
The reason for a diminishing marginal rate of substitution is related to the principle of diminishing marginal utility that we looked at.

- This stated that individuals will gain less and less additional satisfaction the more of a good that they consume.
- This principle, however, is based on the assumption that the consumption of other goods is held constant.
- In the case of an indifference curve, this is not true. As we move down the curve, more of one good is consumed but less of the other. Nevertheless, the effect on consumer satisfaction is similar.

6.1 Marginal rate of substitution

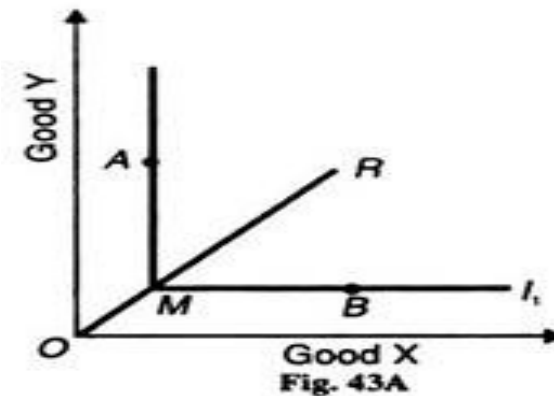
- Perfect substitutes

If two goods X and Y are perfect substitutes, the indifference curve is a straight line with negative slope



- Perfect complements

If the two goods are perfect complements the indifference curve is right-angled or L shaped



6.2 Relationship between MRS and MU

Consumption at any point yields equal satisfaction. Thus, the utility sacrificed by giving up one commodity must be equal to the utility gained by consuming other commodity.

	Apple	Mango
Combination 1	18	1
Combination 2	16	2

In other words, the marginal utility of an mango must be two times as great as that of an apple

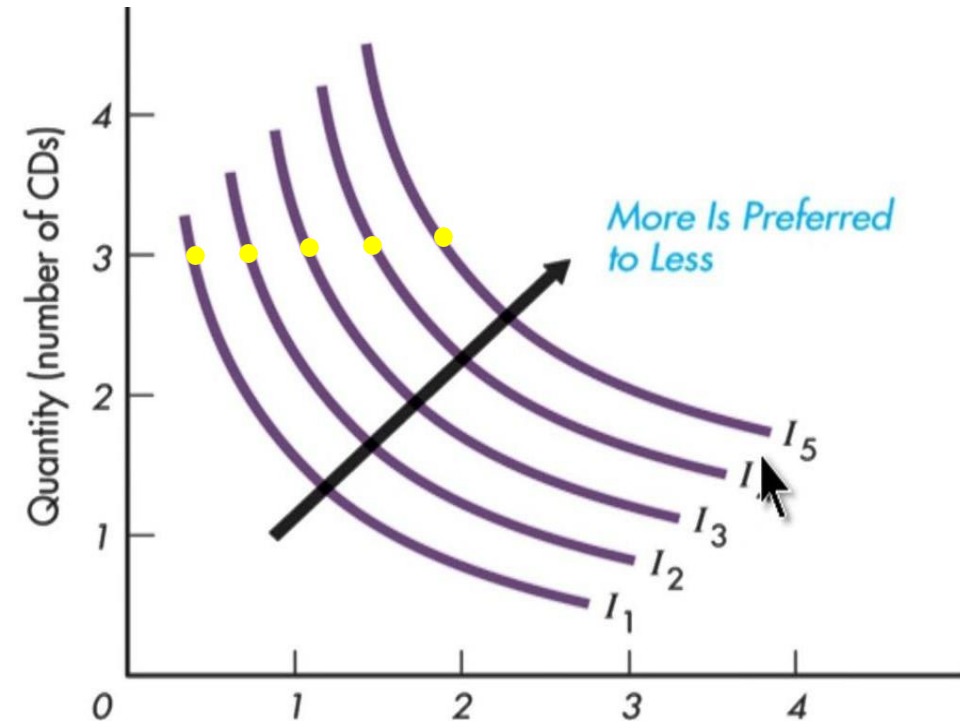
$$MRS = \frac{MU_X}{MU_Y} = \text{slope of indifference curve (ignoring negative sign)}$$

6.3 Indifference Map

- A graph showing a whole set of indifference curves. The further away a particular curve is from the origin, the higher the level of satisfaction it represents.

In graph

- Consumer having more unit of other commodity as the graph moves away from origin



6.4 Budget line

- This is the other important element in the analysis of consumer behaviour.
- Whereas indifference maps illustrate people's preferences, the actual choices they make will depend on their incomes.
- The budget line shows what combinations of two goods you are able to buy, given
 1. your income available to spend on them and
 2. their prices.

6.4 Budget line

Example – Dr. Strange go to supermart with rupees 100. He thinks that if he spend rupees 100 he should gain atleast 200 utility. He decided to purchase apple & mangoes

Fruit	Price	Utility
Apple	5	10
Mango	10	20



For a total price of 100 giving utility 200, One combination is 10 apples and 5 mangoes
Can you think of other combinations of apples and mangoes, in whole numbers only, with an exact budget of 100 and an exact utility of 200?
How many combinations are possible?

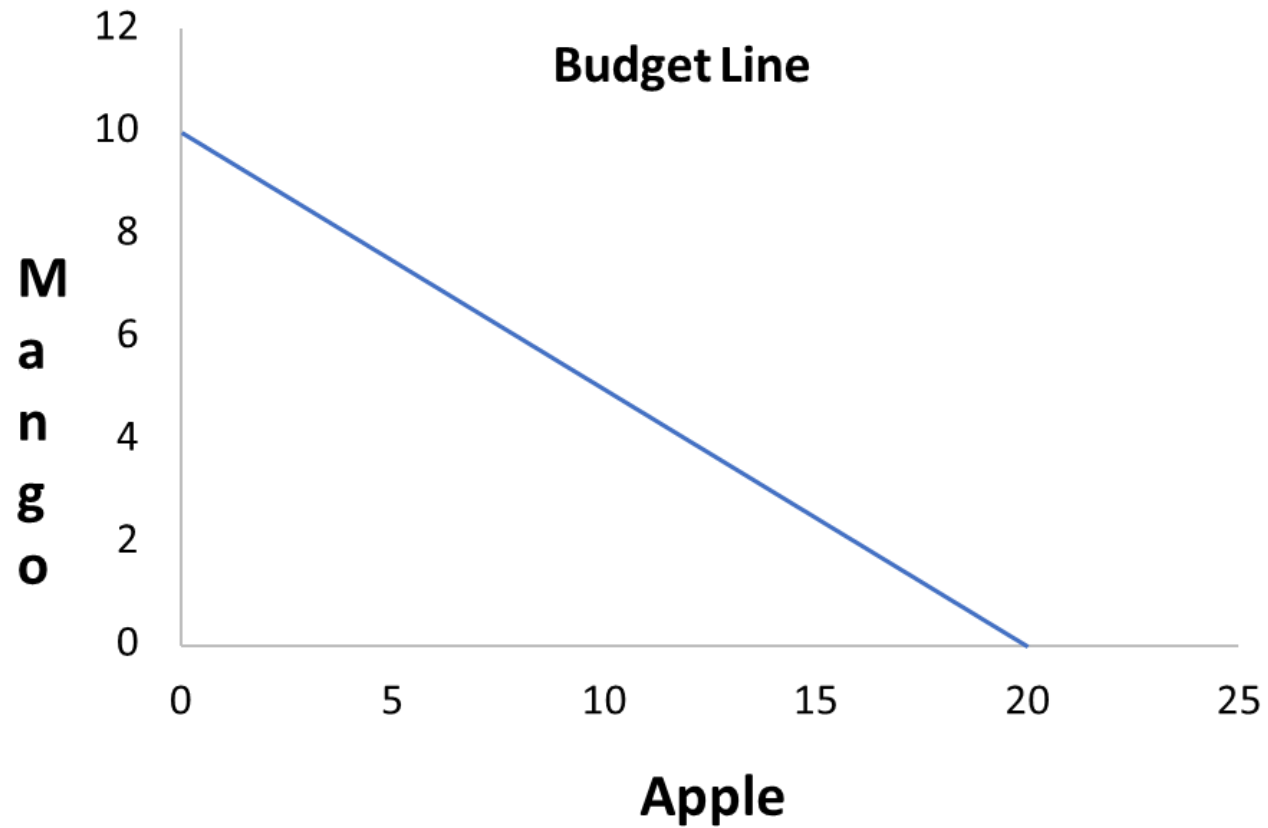
6.4 Budget line

Combinations

	Apple	Mango	Total Spending	Total Utility
Combination 1	20	0	100	200
Combination 2	18	1	100	200
Combination 3	16	2	100	200
Combination 4	14	3	100	200
Combination 5	12	4	100	200
Combination 6	10	5	100	200
Combination 7	8	6	100	200
Combination 8	6	7	100	200
Combination 9	4	8	100	200
Combination 10	2	9	100	200
Combination 11	0	10	100	200

Fruit	Price	Utility
Apple	5	10
Mango	10	20

6.4 Budget line



6.4 Budget line

As shown in graph

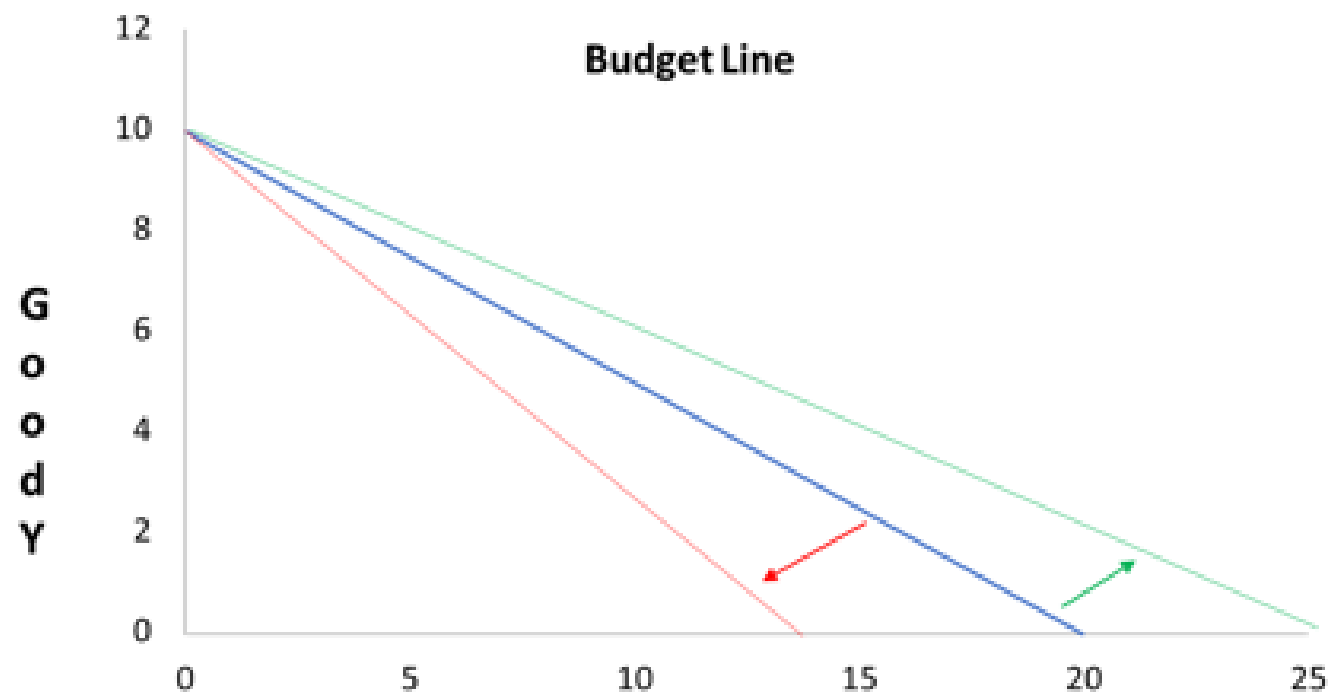
- If budget increases the budget line will shift to the right (Green line) & if budget decreases the line will shift to left (Red line)



6.4 Budget line

As shown in graph

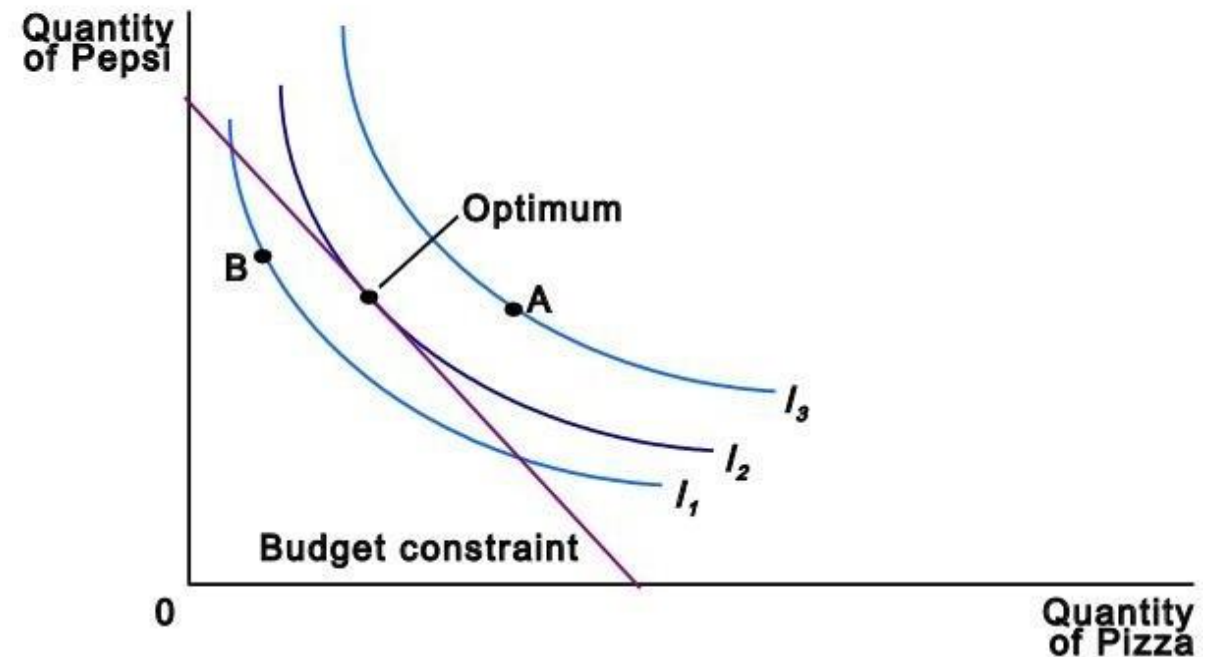
- If Price increases the budget line will pivot to the left (Red line) & if price decreases the line will pivot to right (Green line)



6.5 Optimum Consumption Point

- We are now in a position to put the two elements of the analysis together: the indifference map and a budget line.
- This will enable us to show how much of each of the two goods the 'rational' consumer will buy from a given budget.

The Consumer's Optimum...



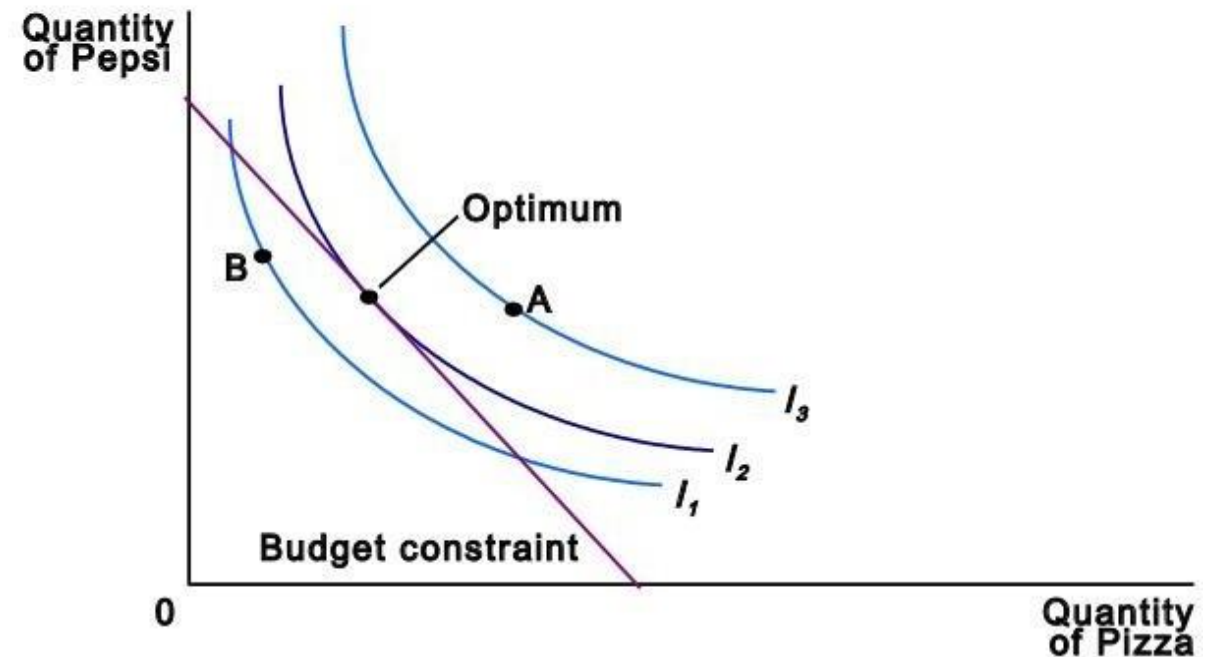
6.5 Optimum Consumption Point

The consumer would like to consume along the highest possible indifference curve.

In graph

- The optimum point is between C,D,E
- The consumer has capacity to pay for that product on given points due to budget constrain
- Consumer can not consider A point because he doesn't have that much budget to pay & not point B because he is spending less of his budget

The Consumer's Optimum...



6.5 Optimum Consumption Point



The price of an apple is 20 rupees and price of a mango is 25 rupees
Find the optimum consumption point for a budget of 600

	Apple	Mango
Combination 1	30	6
Combination 2	24	7
Combination 3	20	8
Combination 4	14	10
Combination 5	10	13
Combination 6	8	15
Combination 7	6	20

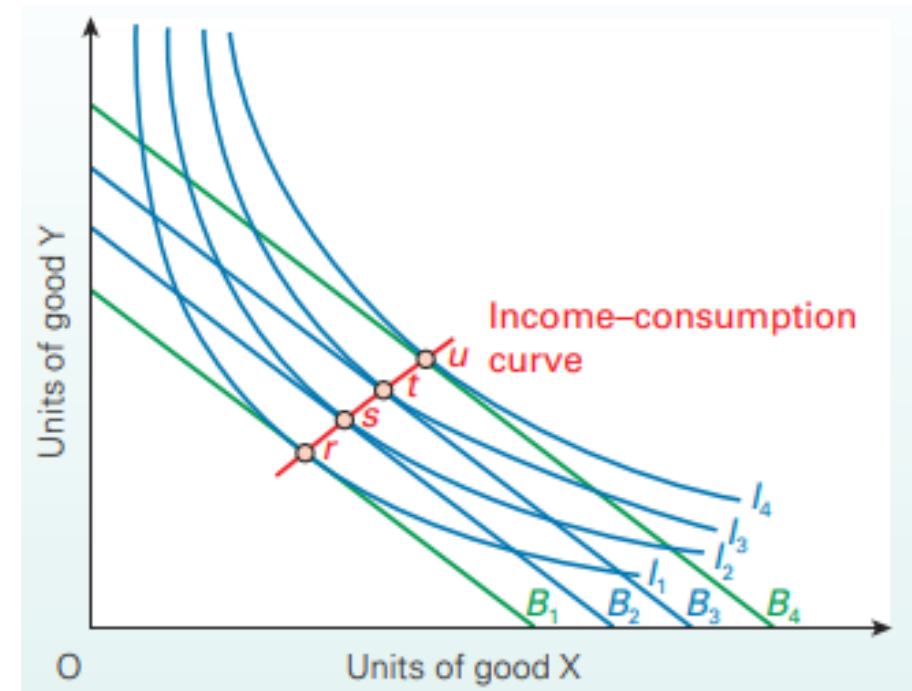
6.6 Limitations

- Indifference curve is difficult to derive
- Consumer may not behave rationally
- Based on satisfaction & this belief may be more influenced by advertising
- Certain goods are purchased when needed, only one at a time.
 - Examples would include consumer durables such as cars, televisions and washing machines. Indifference curves are based on the assumption that marginal increases in one good can be traded off against marginal decreases in another. This will not be the case with consumer durables.

7 Income consumption curve

A series of budget lines are drawn representing different levels of consumer income. The corresponding optimum consumption points (r, s, t, u) are shown. Each point is where the new higher budget line just touches the highest possible indifference curve.¹ The line joining these points is known as the income-consumption curve.

If your money income goes up and the price of goods does not change, we say that your real income (Income measured in terms of how much it can buy) has risen.



7.1 Price consumption curve

If either X or Y changes in price, the budget line will 'pivot'. Take the case of a reduction in the price of X (but no change in the price of Y). If this happens, the budget line will swing outwards.

The old optimum consumption point was at j. After the reduction in the price of good X, a new optimum consumption point is found at k.

A series of budget lines could be drawn, all pivoting round point a in Figure. Each one represents a different price of good X, but with money income and the price of Y held constant. The flatter the curve, the lower the price of X. At each price, there will be an optimum consumption point. The line that connects these points is known as the price-consumption curve



7.2 Income and substitution effect of price change

In earlier chapters we argued that when the price of a good rises, consumers will purchase less of it for two reasons:

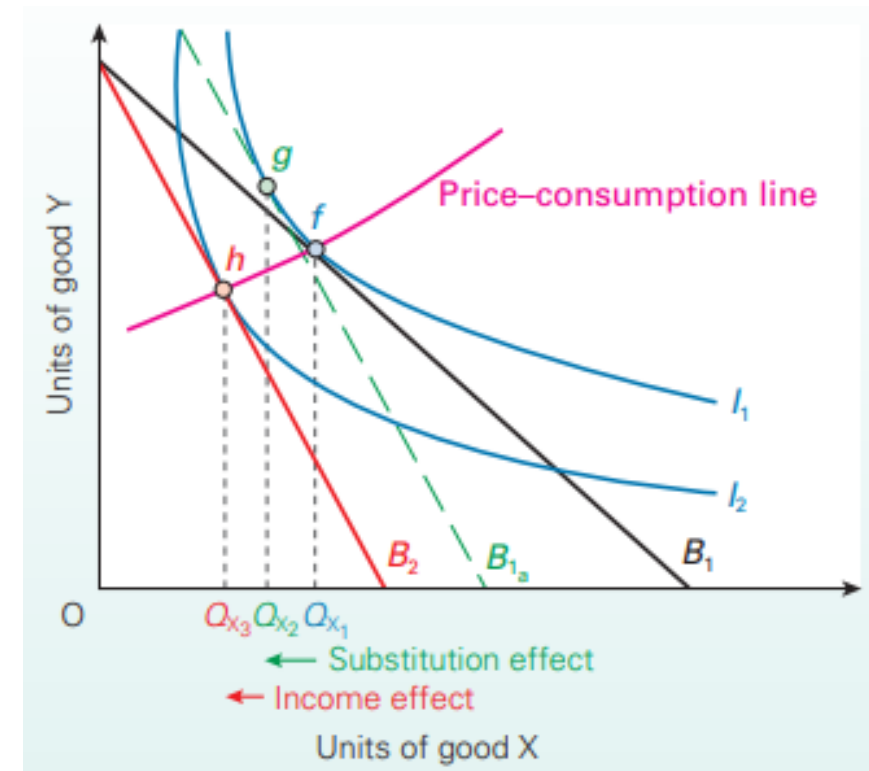
- They cannot afford to buy so much. This is the **income effect**.
- The good is now more expensive relative to other goods. Therefore consumers substitute alternatives for it. This is the **substitution effect**.

7.2 Income and substitution effect of price change

The price of **normal good** X has risen and the budget line has pivoted inwards from B_1 to B_2 . The consumption point has moved from point f to point h . Part of this shift in consumption is due to the substitution effect and part is due to the income effect.

The substitution effect.

To separate these two effects a new budget line is drawn, parallel to B_2 but tangential to the original indifference curve I_1 . This is the line B_{1a} . Being parallel to B_2 , it represents the new price ratio (i.e. the higher price of X). Being tangential to I_1 , however, it enables the consumer to obtain the same utility as before: in other words, there is no loss in real income to the consumer. By focusing, then, on B_{1a} , which represents no change in real income, we have excluded the income effect. The movement from point f to point g is due purely to a change in the relative prices of X and Y. The movement from Q_{x1} to Q_{x2} is the substitution effect

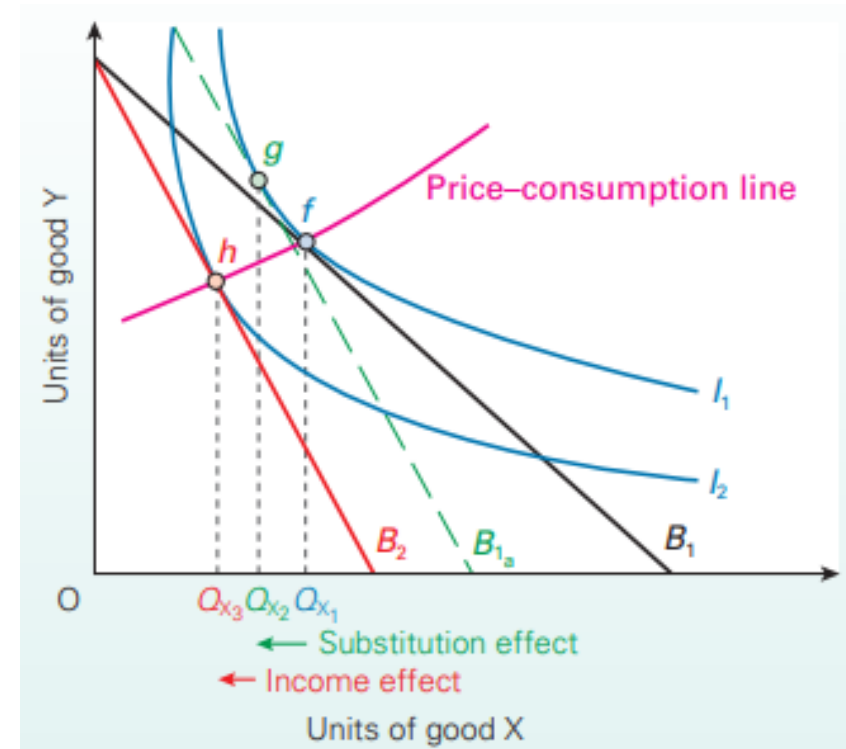


7.2 Income and substitution effect of price change

The income effect

In reality, the budget line has shifted to B_2 and the consumer is forced to consume on a lower indifference curve I_2 : real income has fallen. Thus the movement from Q_{x2} to Q_{x3} is the income effect. In the case of a normal good, therefore, the income and substitution effects of a price change reinforce each other. They are both negative: they both involve a reduction in the quantity demanded as price rises (and vice versa).

The bigger the income and substitution effects, the higher will be the price elasticity of demand for good X

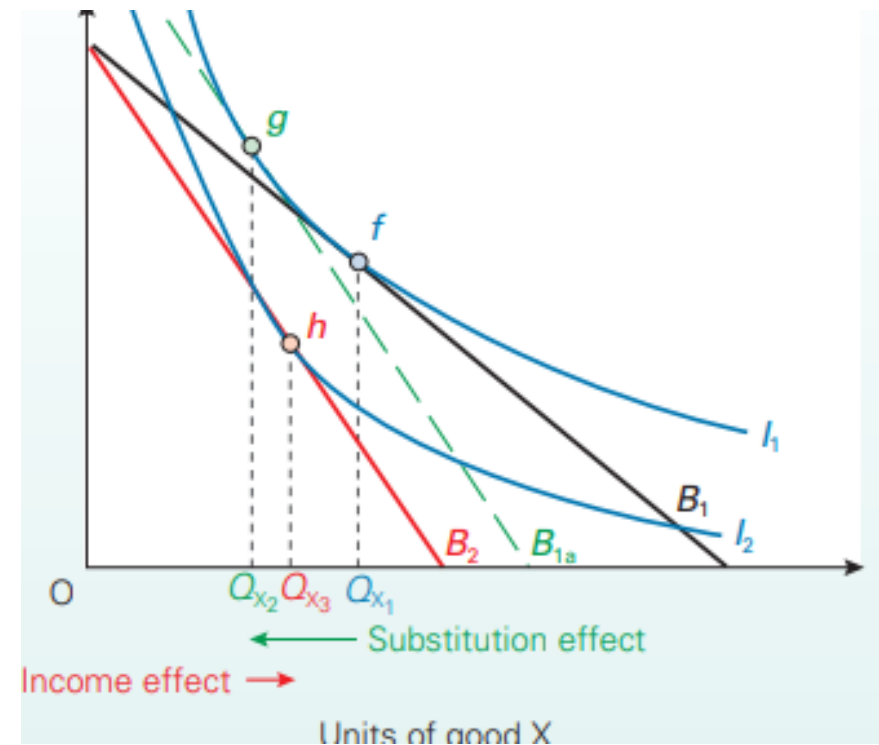


7.2 Income and substitution effect of price change

When people's incomes rise, they will buy less of **inferior goods**, since they will now be able to afford better-quality goods instead. Conversely, when their income falls, they will have to reduce their living standards: their consumption of inferior goods will thus rise

The substitution effect.

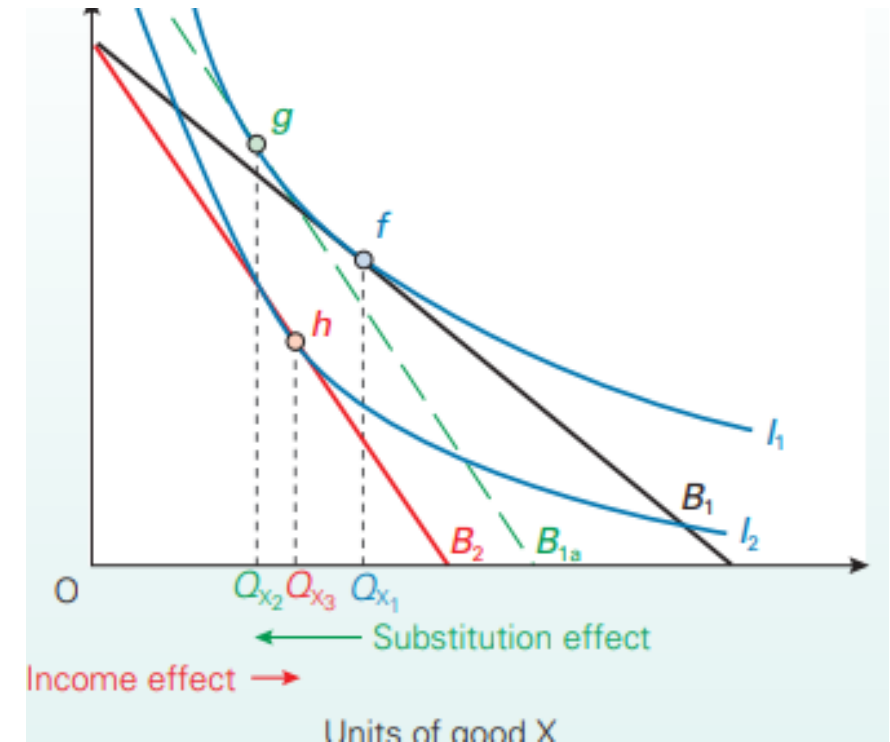
If the price of an inferior good (good X) rises, the substitution effect will be in the same direction as for a normal good. People will consume less X relative to Y, since X is now more expensive relative to Y. This is explained in Figure by a movement along the original indifference curve (I_1) from point f to point g. The quantity of X demanded falls from Q_{x1} to Q_{x2}



7.2 Income and substitution effect of price change

The income effect

The income effect of the price rise, however, will be the opposite of that for a normal good: it will be positive. The reduction in real income from the rise in price of X will tend to increase the consumption of X, since with a fall in real income more inferior goods will now be purchased – including more X. Thus point h is to the right of point g: the income effect increases quantity back from Q_{x2} to Q_{x3}

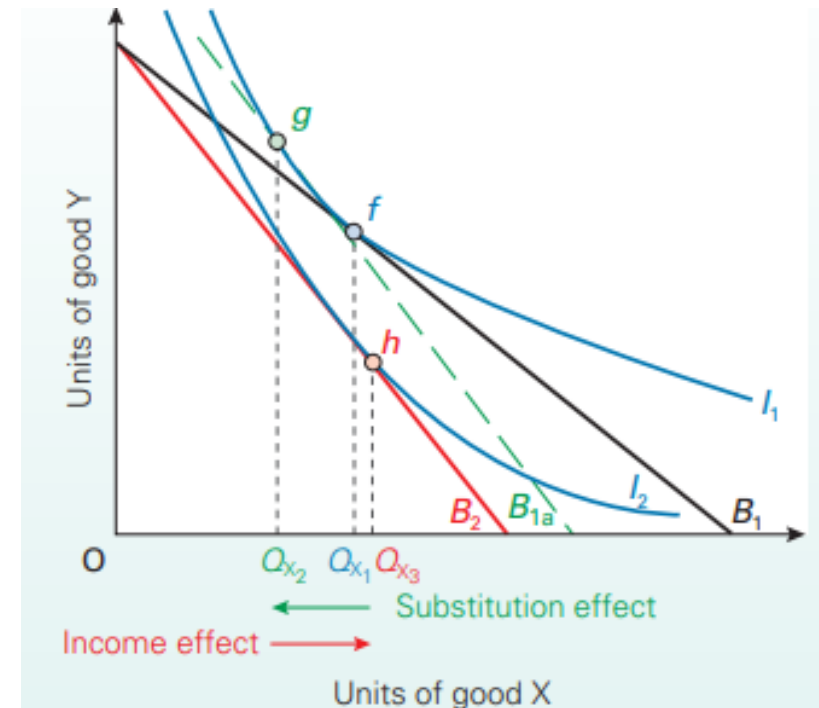


7.2 Income and substitution effect of price change

If the inferior good were to account for a very large proportion of a consumer's expenditure, a change in its price would have a significant effect on the consumer's real income, resulting in a large income effect. It is conceivable, therefore, that this large abnormal income effect could outweigh the normal substitution effect.

In such a case, a rise in the price of X would lead to more X being consumed! This is illustrated in Figure given, where point h is to the right of point f. In other words, the fall in consumption (Q_{x1} to Q_{x2} as a result of the substitution effect is more than offset by the rise in consumption (Q_{x2} to Q_{x3}) as a result of the large positive income effect

Such a good is known as a **Giffen good**



8

Attitudes towards risk and uncertainty

In order to explain people's attitude towards risk it is important to understand the concept of expected value.

The expected value of a gamble is the amount the person would earn on average if the gamble was repeated on many occasions. To calculate the expected value of a gamble you simply multiply each possible outcome by the probability that outcome will occur. These values are then added together

Example:

You are thinking of buying an instant lottery ticket/scratch card. The lottery ticket costs £5 and there is a 1 in 10 or 10 per cent chance that it will be a winning ticket. A winning ticket pays a prize of £50.

If it is a winning ticket, it will give you a total of £150 to spend (£100 left out of your loan after you have purchased the ticket plus a £50 prize).

If it is a losing ticket, in which case you will only have £100 left to spend out of your student loan.

Therefore, the expected value of this gamble is:

$$EV(\text{gamble}) = 0.1(\text{£}150) + 0.9(\text{£}100) = 105$$

8 Attitudes towards risk and uncertainty

There are three possible categories of attitude towards risk.

Risk neutral

- If people are risk neutral, they will always choose the option with the highest expected value. Therefore, in this example, a student who is risk neutral would be indifferent between buying or not buying the instant lottery ticket

Risk averse

- If people are risk averse they will never choose a gamble if it has the same expected value as a certain payoff. Therefore, a student who is risk averse would definitely not buy the instant lottery ticket

Risk loving

- If people are risk loving they would always choose a gamble if it had the same expected value as the pay-off from not taking the gamble. Therefore, a risk-loving student would definitely purchase the lottery ticket

8

Attitudes towards risk and uncertainty

Whether or not risk-averse people do take gambles depends on the strength of their aversion to risk, which will vary from one individual to another. The greater a person's level of risk aversion, the greater the expected value of a gamble they are willing to give up in order to obtain a certain pay-off.

The certain amount of money that gives a person the same utility as the gamble is known as the gamble's **certainty equivalent**. The more risk averse a person is, the lower the gamble's certainty equivalent for them.

The expected value of a gamble minus a person's certainty equivalent of that gamble is called the **risk premium**. The more risk averse someone is, the greater their positive risk premium

9 Insurance – A way of removing risks

Insurance is the opposite of gambling. It removes the risk.



How does insurance company remove risks for it's customers and in return also make profit overall?

Given that many people are risk averse, they may be prepared to pay a premium for an insurance policy even though it will leave them with less than the expected value of not buying the insurance and taking the gamble. The total premiums paid to the insurance companies, and hence the revenue generated, will be more than the amount the insurance companies pay out: that is, after all, how such companies make a profit.

The insurance company is able to bear the risks and yet make profits by spreading its risks

9 Insurance – A way of removing risks

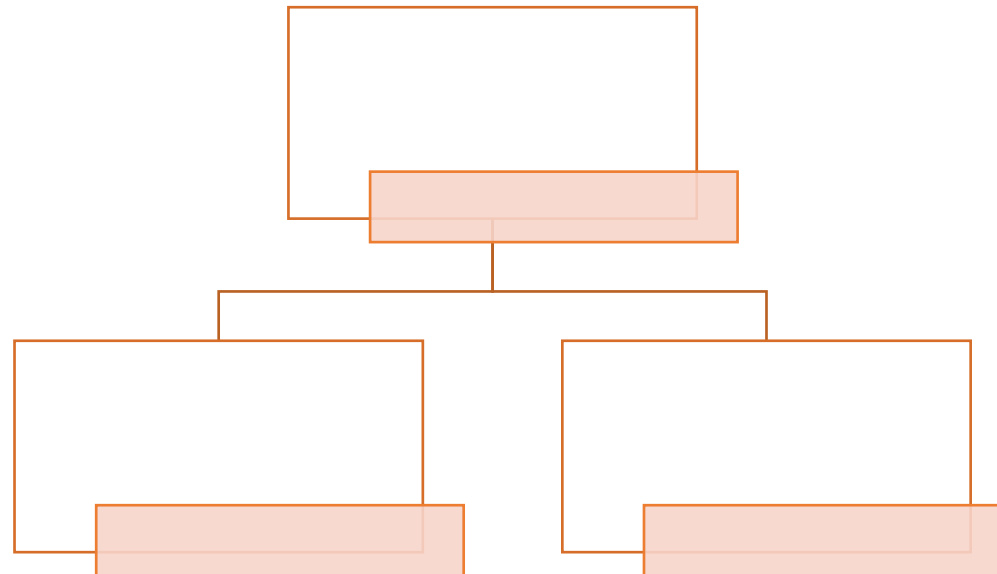
Ways in which insurance companies can reduce their risks:

- Spreading of risks by insurance companies requires large number of policies hence it follows the **law of large numbers** i.e. What is unpredictable for an individual becomes highly predictable in the mass. The more people the insurance company insures, the more predictable the final outcome becomes. In other words, an insurance company will be able to convert your uncertainty into their risk.
- The spreading of risks does not just require that there should be a large number of policies. It also requires the risks to be independent. This means that if one person makes a claim it does not increase the chances of another person making a claim too.
- Another way in which insurance companies can spread their risks is by **diversification**. The more types of insurance a company offers (car, house, life, health, etc.), the greater the likelihood the risks would be independent.

9 Insurance – A way of removing risks

Problems for unwary insurance companies:

A major issue for insurance companies is that they operate in a market where there is significant asymmetric information. **Asymmetric information** exists in a market if one party has some information that is relevant to the value of that transaction that the other party does not have.



9 Insurance – A way of removing risks

Adverse selection

- A market process whereby buyers, sellers or products with certain unobservable characteristics (e.g. high risk or low quality) are more likely to enter the market at the current market price. This process can have a negative impact on economic efficiency and cause some potentially profitable markets to collapse
- One way to tackle the problem of adverse selection would be for the party who is uninformed about the relevant characteristics of the other parties to ask them for information.
- An alternative would be for the person or party who is informed about the relevant characteristics taking action to reveal it to the uninformed person or party. This is called 'signalling'.

9 Insurance – A way of removing risks

Moral hazard

- Following a deal, the actions/behaviour of one party to a transaction may change in a way that reduces the pay-off to the other party. In the context of insurance, it refers to customers taking more risks when they have insurance than when they do not have insurance.
- One approach to tackle moral hazard would be for the uninformed party to devote more resources to monitoring the actions and behaviour of the informed party – in other words, to reduce the asymmetry of information.
- An alternative is to change the terms of the deal so that the party with the unobservable actions has an incentive to behave in ways which are in the interests of the uninformed party

9 Insurance – A way of removing risks

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10

Behavioral Economics



Economics is the study of how individuals & society make decisions about ways to use scarce resources to fulfill want & needs.

Based on this, according to you, what is the term 'behavioral economics'?

10

Behavioral Economics

- Behavioral economics is a subfield of economics that focuses on

- 1) Psychological factors
- 2) Social factors
- 3) Emotional factors

that influence the decision making

- Behavioral economics can be thought of as human psychology mixed with economics
- Behavioral economics are being applied in more & more fields like
 - 1) Marketing
 - 2) Finance
 - 3) Political science
 - 4) Public policy

10 Behavioral Economics



Behavioral Economics in marketing involves marketing a particular product in such a way that appeals more to psychology of customers, thus increasing sales
Similarly, in what other fields/departments of a company can behavioral economics be used and how?

10 Behavioral Economics

Behavioural economics assumes that the **people behave rationally**

For Example – If the price of product falls people will buy that product more, so the law of demand holds true

10.1 Limits

Bounded Rationality

- A person might in principle want to maximize utility, but faces complex choices and imperfect information.
- Sometimes, it would be possible to obtain better information.
- But on other occasions people may decide that it is not worth the time and effort, and perhaps expense, of getting more information.
- Their ability to be 'rational' is thus limited or 'bounded' by the situation in which they find themselves.
- For example – If you were asked to buy 1kg of sugar without any knowledge of the general price, you will pay whatever amount the store person asks you without enquiring other stores and general price

10.1 Limits

Heuristics

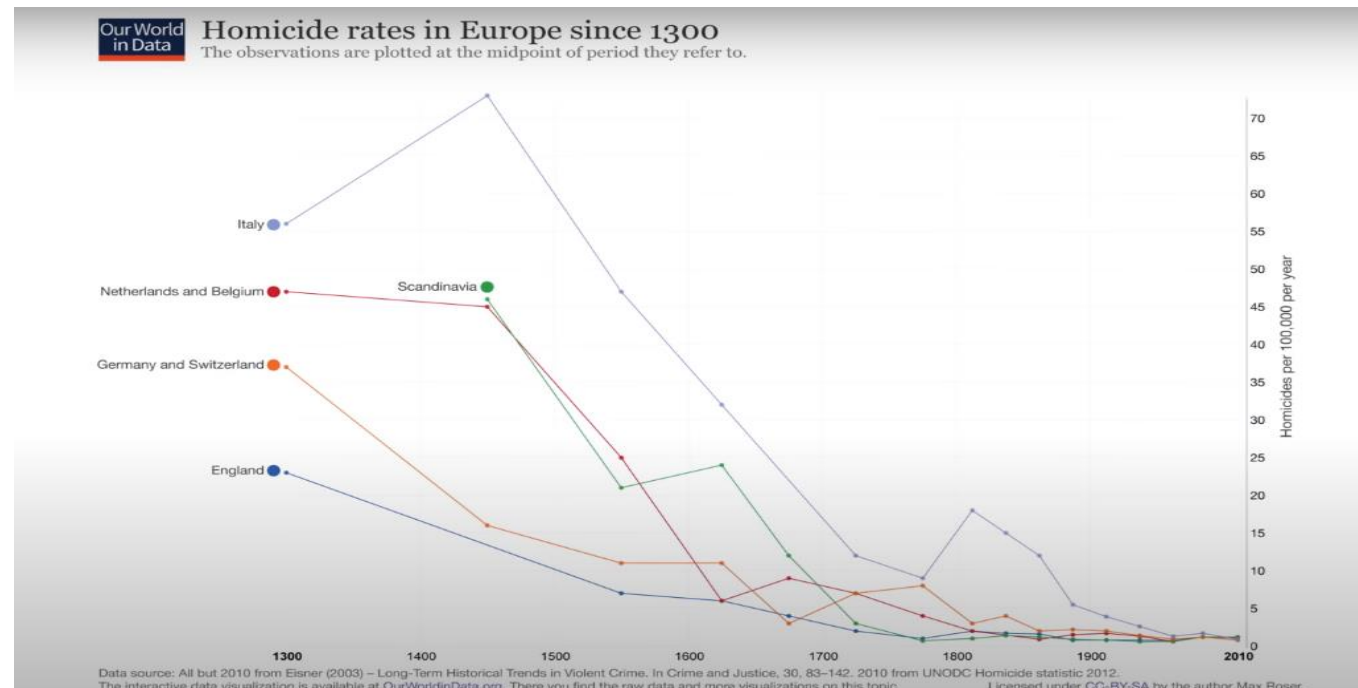
- When trying to solve complex problems or when faced with limited information. They reduce the computational or research effort required but sometimes lead to systematic errors.
- People may resort to making the best guess, or to drawing on past experiences of similar choices that turned out to be good or bad. Sometimes, when people are likely to face similar choices again, they resort to trial and error. They try a product. If they like it, they buy it again; if not, they don't.
- For example, you may have had a Sony TV before and liked it and so, when buying a laptop, choose a Sony.

10.1 Limits



If you were asked 'Is the world more or less violent in the past 20 years than previously?', what is the first answer that comes to mind?

Is your answer based on actual statistical data or heuristics based on available news?



10.1 Limits

Nudge Theory

- This theory influences the buying behavior pattern of consumer.
- It is helpful in making marketing decision.
- Example –
- To increase healthy food consumptions among children, in a school cafeteria salads and other healthy food were kept at the start and deserts were kept at the end in inconvenient places
- Classical economics suggests children will prefer deserts which give maximum utility
- On the contrary children actually preferred salads which was at the start instead of deserts

Product 1	Product 2
75% Fat-free	25% Fat

Which product will be preferred?

Generally Product 1 because it is written fat 'FREE'

10.1 Limits

Hindsight Bias

- Events that actually take place are easier to imagine and visualise than those that do not. Therefore, people have a tendency to
 1. overestimate the chances that an event would happen after it has actually occurred;
 2. underestimate the chances that an event would happen that did not occur.
- Example – After watching their team lose, football fans believe that the tactics chosen by the manager were always more likely to fail than they actually were before the game began.
- Financial bubbles are always subject to substantial hindsight bias after they burst. Following the dotcom bubble in the late 1990s and the Great Recession of 2008, many analysts demonstrated clearly how events that seemed trivial at the time were actually harbingers of future financial trouble. They were right, but other concurrent events reinforced the assumption that the boom times would never end.

10.1 Limits

Loss aversion

Loss is more painful than gain

Example

- To increase the use of reusable bag one supermart came with the plan that if customer is coming with reusable bags then they will get 20 rupees discount on bill
- But this thing didn't influence people more
- Now they come up if the people use plastic bag then they need to pay 20 rupees as tax
- After this decision people started using reusable bags

Endowment Effect

The hypothesis that people ascribe more value to things when they own them than when they are merely considering purchasing or acquiring them – in other words, when the reference point is one of ownership rather than non-ownership.

10.1 Limits

Example –

- In a famous study, Kahneman, Knetsch and Thaler¹ carried out a series of experiments with students on a Law and Economics degree at Cornell University.
- They were randomly divided into two equal-sized groups.
- Students in one group were each given a coffee mug and told that they could sell it if they wished. They were asked for their willingness to accept (WTA).
Students in the other group could each examine the mugs and make an offer to buy one. They were asked their willingness to pay (WTP).
- The authors found that the median WTA of the students who were given the mugs was \$5.25 whereas the median WTP in the other group was only \$2.25.
- As the students had been randomly allocated into the two groups, standard theory predicts that WTP should be equal to WTA. However, the evidence suggests that those who were given ownership of the mugs at the start of the experiment valued them far more than those who were not.

10.1 Limits

Time consistency

- Where a person's preferences remain the same over time.
- The idea that present reward is more desirable than future ones

Research: would you want to receive \$50 today or \$100 next year? How about \$50 in three years or \$100 in four years?



10.1 Limits

Present bias

- Time-inconsistent behavior whereby people give greater weight to present pay-offs relative to future ones than would be predicted by standard discounting techniques. Basically, where people's behavior is influenced by the effects it will have on others.
- We start by looking at the effect of our consumption on other people. Behavioral economists have tried to develop utility functions that capture the idea that consumers care about the pay-offs to other people as well as themselves.
- Example – Having altruistic preferences in economics means that you might be willing in some circumstances to increase the pay-offs to another person or group of people at a personal cost to yourself.
- Example – Many people make New Year's resolutions; most do not stick to them! People are weak willed; people put things off. This is where people put a greater weight on present benefits and/or costs than would be implied by a standard discounting approach. This means that they put excess weight on the costs of doing things they don't like doing, but believe are good for them; and excess weight on the benefits of doing things they want to do, but believe are bad for them.

10.1 Limits

Relativity matters

- Not only are we likely to consider the effect we have on others and be motivated by either altruism or spite, but we are also likely to be influenced by other people's behavior.
- Example – If you are making a choice about buying a car, you might be influenced by the car your brother drives; if he chooses an Audi, perhaps you would like a more expensive car, a Mercedes possibly.

10.1 Limits

Herding & Group thinking

- Being influenced by what other people buy, and thus making relative choices, can lead to herd behavior.
- A fashion might catch on; people might grab an item in a sale because other people seem to be grabbing it as well
- But there is a danger in such behavior
- An example of human herd behavior is the phenomenon of stock market bubbles. Large stock market trends often begin and end with a mass frenzy of buying (bubbles) or selling (crashes). Many observers see these stock market trends as examples of herding behavior because individuals are driven by emotion rather than reason to “join the crowd”; greed drives mass buying frenzies, and fear drives crashes.

10.2 Implication for economic policy

- Governments, in designing policy, will normally attempt to change people's behavior.
- They might want to encourage people to work harder, to save more, to recycle rubbish, to use their cars less, to eat more healthily, and so on.
- If the policy is to be successful, it is vital for the policy measures to contain appropriate incentives: whether it be a tax rise, a grant or subsidy, a new law or regulation, an advertising campaign or direct help.
- But whether the incentives are appropriate depends on how people will respond to them, and to know that, the policy makers will need to understand people's behavior. This is where behavioral economics comes in.
- People might respond as rational maximizers; but they might not. It is thus important to understand how context affects behavior and adjust policy incentives appropriately.

10.2 Implication for economic policy



An example of economic policy based on behavioral economics is 'Tax incentive for startups'. What other examples can you think of where economic policies and decision making by government is based on behavioral economics?