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DELHI NCR

SCHOOL OF
MANAGEMENT AND
ENTREPRENEURSHIP

# Economics for Business - I

**MEC1001 [L3]**

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# Economics for Business - I

## Introduction

# Course Outline

- Basic Issues
  - Why study economics
  - The two branches of economics
  - Demand and Supply
  - Elasticities (sensitivity of demand w.r.t. price)
- Theory of Consumers (Consumer Behaviour)
- Theory of Producers (Firm Behaviour)
- Markets (Perfect competition, monopoly, monopolistic competition, oligopoly)
- Strategic Interactions *aka* Game Theory- Preliminaries
- Market Failures (if time permits)

# Why Study Economics

- Economics studies what drives **human behaviour** (and behaviour of groups) and the decisions taken by nation-states (**economies**).
- Using scientific methods, economics helps **allocate scarce resources** to ensure efficiency in today's world.
- Businesses/companies/**firms** rely on economics for demand assessment, product R&D, marketing, pricing, resource allocation, etc. – **Vital for any business to operate efficiently, survive, and expand**.
- Develops an understanding of **costs-benefits** of decisions and **impacts of government policies**, provides global perspective (**international trade** and policies).
- **Develops competencies and skills** – Critical and analytical thinking, problem solving, research, etc.
- **Expands career prospects** – Academia, public sector, banking and finance, risk management, policy advocacy, or consultancy.

# Economics

- **Economics –** Derived from the Greek word ***oikonomos* – "One who manages household"**
- It is a discipline that deals with **how people or groups make choices** and its impact on society
  - Reels vs. educational videos (is there a clear choice here???)
  - Netflix vs. Prime Videos (probably both, right!!!) – How about all other streaming services???
  - Private car vs. cab (for undertaking a journey)
  - Homeless person- Stealing vs. begging vs. looking for low-paying job
  - Parents- Choosing private vs. public school
  - Firms- Whether to innovate or continue with existing
  - Nation-
    - The Government of India deciding on how much fund to allocate in the budget for the Airports vs. Railways
    - Whether to increase income tax in the budget or continue the old slabs
    - Whether to continue with the armed conflict with another nation or end it (Russia vs Ukraine)
    - For a small country, whether to take loans from more prominent countries (Sri Lanka?)
- Anchoring factor – **Scarcity** of resources (time, money, etc.) – People have unlimited desires for limited resources
- We work with different models (to understand simplified versions of reality)
- However, in Economics, we study warm-glow, altruism, cognitive stress, biases, etc. aspects as well [Behavioural Economics]
- Positive vs. Normative (carbon tax raises fuel price vs. carbon tax is desirable for planet)

# Economics: The Two Branches

- **Two branches of Economics –** Microeconomics and Macroeconomics
- **Microeconomics**
  - How **individuals makes decisions** in daily life (consumption, time allocation, supplying labour, etc.)
  - How **firms make decisions** (production, pricing, hiring, etc.) (**what** and how much to produce, **how** to produce, **for whom** to produce)
  - How **government** can devise policies that impact individuals (e.g. imposing the '**odd-even**' rule in Delhi and its impact on commuting patterns)
  - How a **group** takes decisions [*Gram Panchayat*, Residents' Welfare Association (**RWA**), Organization of Petroleum Exporting Countries (**OPEC**), automobile Manufacturers association (**SIAM**)]
  - **Economic agents**
- **Macroeconomics**
  - It deals with aggregates (study of the economy as a whole)
  - Things that impact the entire economy
  - E.g. – Inflation, unemployment, economic output (GDP), growth rate of GDP, savings rates the banks offer

# Key Principles of Microeconomics

- **Trade-offs in decisions** – To gain something, one must give up something else
  - Time allocation between study vs. binge-watching streaming platforms
  - Use of social media vs. privacy
- **Opportunity cost** – The cost associated with the best opportunity that is foregone to make a particular choice
  - You have a choice between spending a vacation in Lakshadweep vs. A & N Islands, and you choose the first; the opportunity cost of your Lakshadweep trip is the trip to A & N Islands
  - **Demogorgons' choice of fighting alongside Vecna vs. spending time on tour of Upside-down; the opportunity cost of the tour of Upside-down was the epic battle they could have fought with Vecna for bringing the Abyss to the Earth.**
- **Rationality and decisions based on "margin"**
  - Individuals (or firms) make decisions only based on cost and benefits and **do what is best for them**
  - Decisions are based on the margin- Rent an apartment 1 km further away but pay INR 2,000 less as rent

# Key Principles of Microeconomics

- **Incentives impact behaviour** – A purchase subsidy on electric vehicles often induces people to consider these vehicles
- **Role of market**
  - Market helps in effectively allocating resources
  - The households and firms are guided by the "**invisible hand**" (Adam Smith, 1776), leading to desirable market outcomes (**capitalist economy- competitive market**)
  - **Consumers and firms are serving their best own interest** and that is best for society **[maximum that can be produced- total surplus]**
  - E.g. – **inDrive**, where commuters and drivers mutually agree on a common fare for a ride
- **Market failure and the role of government**
  - The "invisible hand" may fail if the **rules of the game are not clearly defined – property rights** are not specifically mentioned, someone's action has unintended consequences on others (**externalities**), a single economic agent has overwhelming power (**market power**) on prices
  - Efficiency doesn't mean equity and justice
  - The government can define the property rights and legal framework
  - The government can ensure equity over market efficiency

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# Economics for Business - I

## Demand and Supply

# Demand and Supply

- Demand and supply capture the interaction of **buyers** and **sellers** of commodities (goods) or services
- In its crude form, a **Market is a group of buyers and sellers**
- **Markets can be**
  - Highly organised (e.g. IPL Auction)
  - Less organised (e.g. our usual markets – vegetable market)
- **Buyers determine demand**
- **Sellers determine supply**
- **Adam Smith (1776)- *The Wealth of Nations***
  - Water is essential for life, diamonds are not
  - Yet, diamonds are expensive but water is not
  - Why?
  - Supply- Scarcity of diamonds

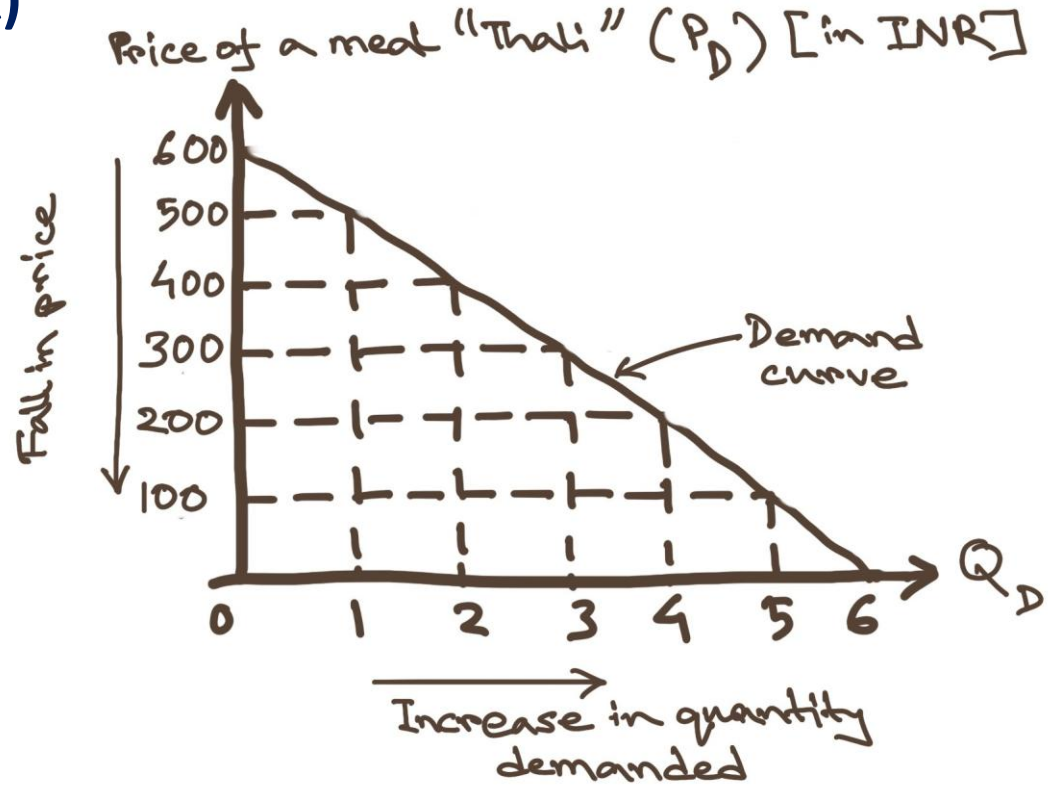
# Demand

- **Quantity demanded-** It is the amount of a good (or service) that buyers are willing and able to purchase (at any point in time)
- What you as a buyer want (and are able) to purchase may depend on many factors- the price of the good, the price of other goods, your mood, etc.
- Main focus- **Price of the good**
- **Law of demand-** It states that other things being equal or constant (*ceteris paribus*), the quantity demanded of a good falls as the price of the good increases (**inverse relationship between price and quantity demanded**)
- **Demand schedule**- A tabular representation of quantity demanded at different price levels (for a good)
- **Demand curve**- A graphical representation of the relationship between price and quantity demanded of a good

# Demand: Individual's Demand

## Demand Schedule – Demand for THALI (in a week)

| Price of THALI (in INR) ($P_D$) | No. of THALIs Demanded ($Q_D$) |
|---|---|
| 0 | 6 |
| 100 | 5 |
| 200 | 4 |
| 300 | 3 |
| 400 | 2 |
| 500 | 1 |
| 600 | 0 |




**Demand Curve**

- Demand curve plots the combination of (quantity, price) pairs
- **Demand curve is downward sloping** (-ve relationship)
- Movement along the curve- **Expansion/Contraction of demand**

# Demand: Market Demand

- Suppose there are only two buyers in the market – Arun and Bidisha

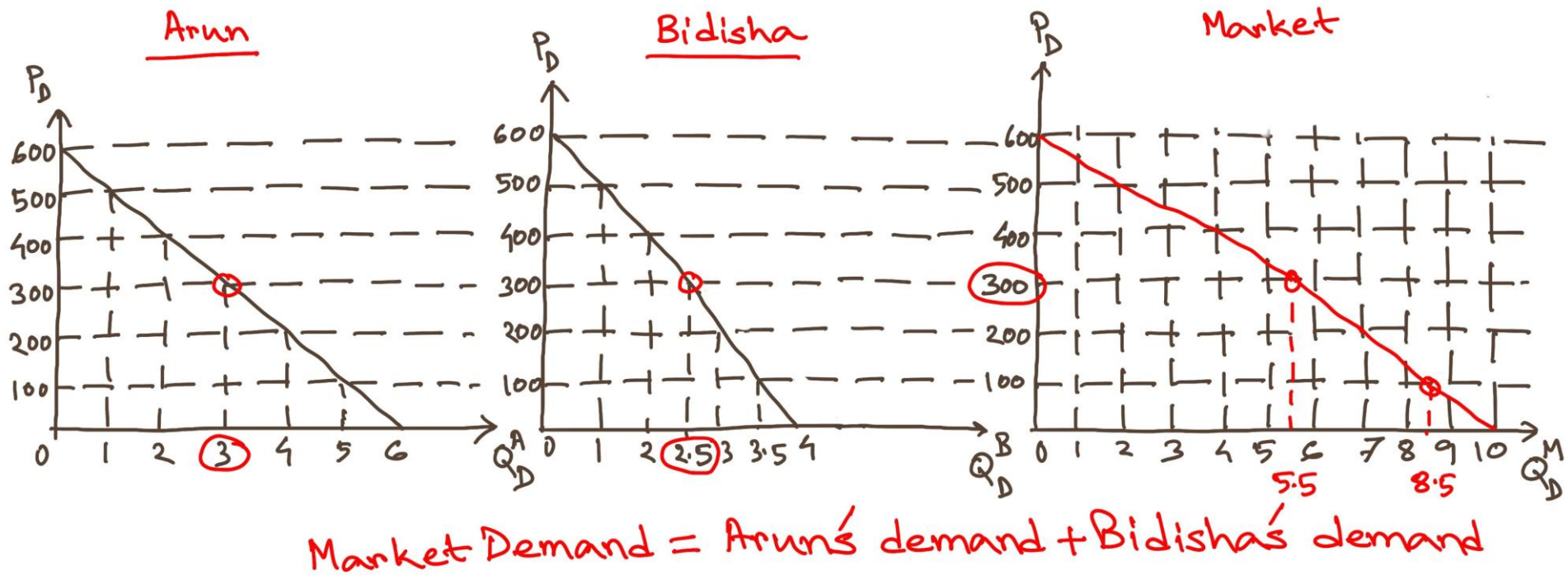
**Market Demand Schedule – Demand for THALI (in a week)**

| Price of THALI (in INR) ($P_D$) | No. of THALIs Demanded by Arun ($Q_D^A$) | No. of THALIs Demanded by Bidisha ($Q_D^B$) | Market Demand for THALI ( $Q_D = Q_D^A + Q_D^B$) |
|---|---|---|---|
| 0 | 6 | 4 | 10 |
| 100 | 5 | 3.5 | 8.5 |
| 200 | 4 | 3 | 7 |
| 300 | 3 | 2.5 | 5.5 |
| 400 | 2 | 2 | 4 |
| 500 | 1 | 1 | 2 |
| 600 | 0 | 0 | 0 |

- Market demand- The quantity demanded in the market is the sum of the quantities demanded by all the buyers

# Demand: Market Demand

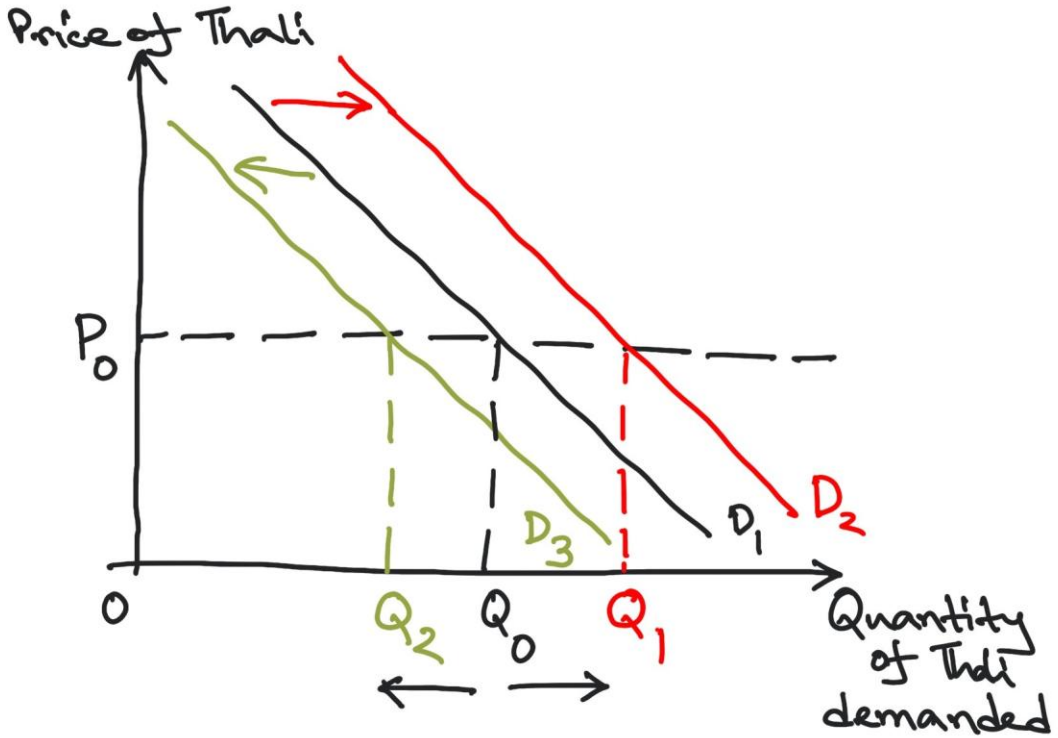
## Derivation of Market Demand Curve




- **Market demand curve**- It is the quantity demanded in a market at various prices
- **Horizontal summation** of individual demand curves

# Demand: Shifts in Demand Curve

- Market demand curve shifts when at a given price, the quantity demanded changes
- **Why does the demand curve shift?**
  - **Quantity demanded depends on several factors other than price**
    - **Tastes**
    - **Income and wealth**
    - **Availability and price of related goods**
    - **Number of buyers**
    - **Belief/Expectations about the future**
  - Violation of the ***ceteris paribus*** assumption (COVID-19 and demand for medicines)

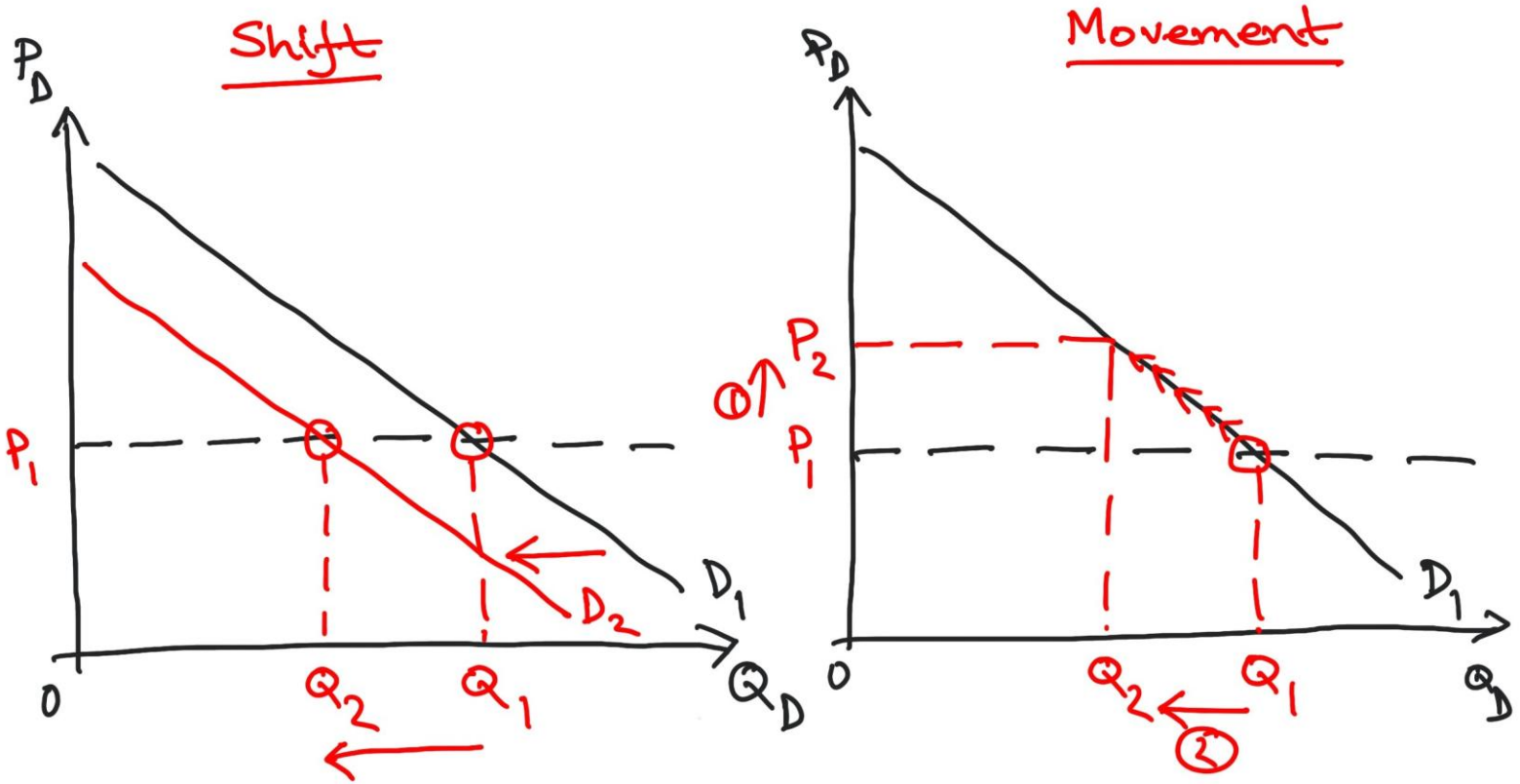



**Shifts in Demand Curve**

## Examples

- Scholarship increases--- Impact?
- People start disliking Thalis--- Impact?
- During vacation, many students vacate the hostels--- Impact on demand for Thalis?

# Demand Curve: Shifts vs. Movement




- **Number of students on-campus reduces**- Left shift of demand curve for Thali
- **Authority decides to increase the price of Thali**- Quantity demanded falls

- **Shift-** Any policy that discourages/reduces consumption/demand shifts the demand curve
- **Movement along-** Any policy that increases price indicates a fall in demand

# Demand Curve: Impact of Changes

| Variable | Movement or Shift in Demand with a Change in Variable | Example |
|---|---|---|
| Own price | Movement along the curve | Price increase → Decrease in demand |
| Income or wealth | Shift of the curve | Income rises → Right shift in demand curve |
| Price of related good | Shift of the curve | Price of Biryani falls → Left shift in demand curve for Thali<br>Price of petrol rises → Left shift in demand for petrol car |
| Tastes | Shift of the curve | People find Thali monotonous → Left shift in demand curve for Thali |
| Expectations about future | Shift of the curve | You expect scholarships to rise in future → Right shift in demand curve |
| Number of buyers | Shift of the curve | Vacation time → Left shift in demand curve |

# Types of Goods

| Type of Good | Definition (*ceteris paribus*) | Example |
|---|---|---|
| Normal Good | Increase in income leads to increase in demand | Most common goods |
| Inferior Good | Increase in income leads to decrease in demand | Old-type mobile phone |
| Substitute | Two goods are substitutes when an increase in price of one leads to increase in demand for the other | Kulfi vs. Ice-cream |
| Complement | Two goods are substitutes when an increase in price of one leads to decrease in demand for the other | Petrol and car |
| Giffen Good (low income, non-luxury) | People tend to buy more when price increases | Potato (Ireland), rice (China) |
| Veblen Good (luxury) | People tend to buy more when price increases | Diamond, exotic cars |

- **Giffen and Veblen goods defy the "Law of demand"**
- Giffen goods (coined by Alfred Marshall in 1890 based on Sir Robert Giffen's observation)- Consumption pattern of poor in the Victorian Era (Irish Potato famine)
- Veblen goods (coined by Thorstein Veblen in 1899)- Conspicuous consumption as status-seeking

# Demand Function

**Demand function:**

$$Q_D = f(P_D, I, P_r, T, E)$$

Where,

$Q_D$ = quantity of the good (say X) demanded
$P_D$ = price of the good X
I = income of the individual
$P_r$ = price of related goods
T = tastes and preferences
E = Expectation about future

**The demand function (quantity vs. price, *ceteris paribus*):**

$$Q_D = f(P_D)$$

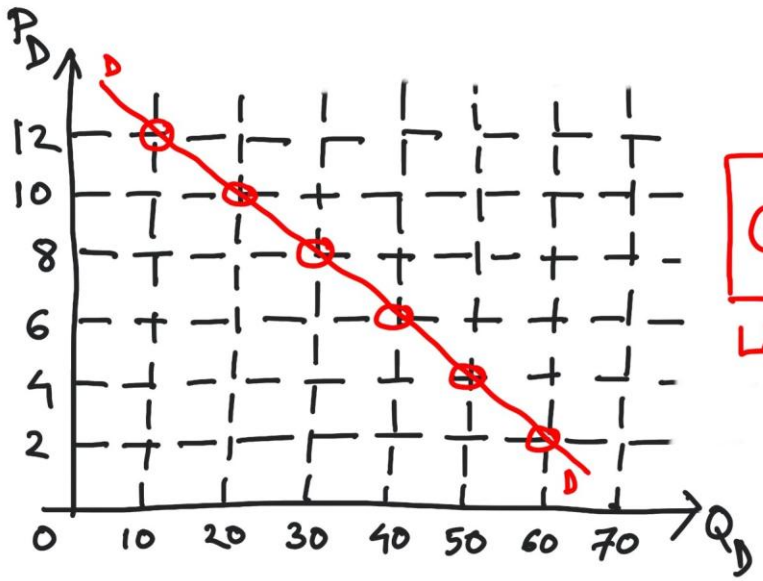
# Demand Function

**The demand function in linear form:**

$$Q_D = a - b.P_D$$

Intercept

Slope




$Q_D = 70 - 5P_D$

Linear demand function

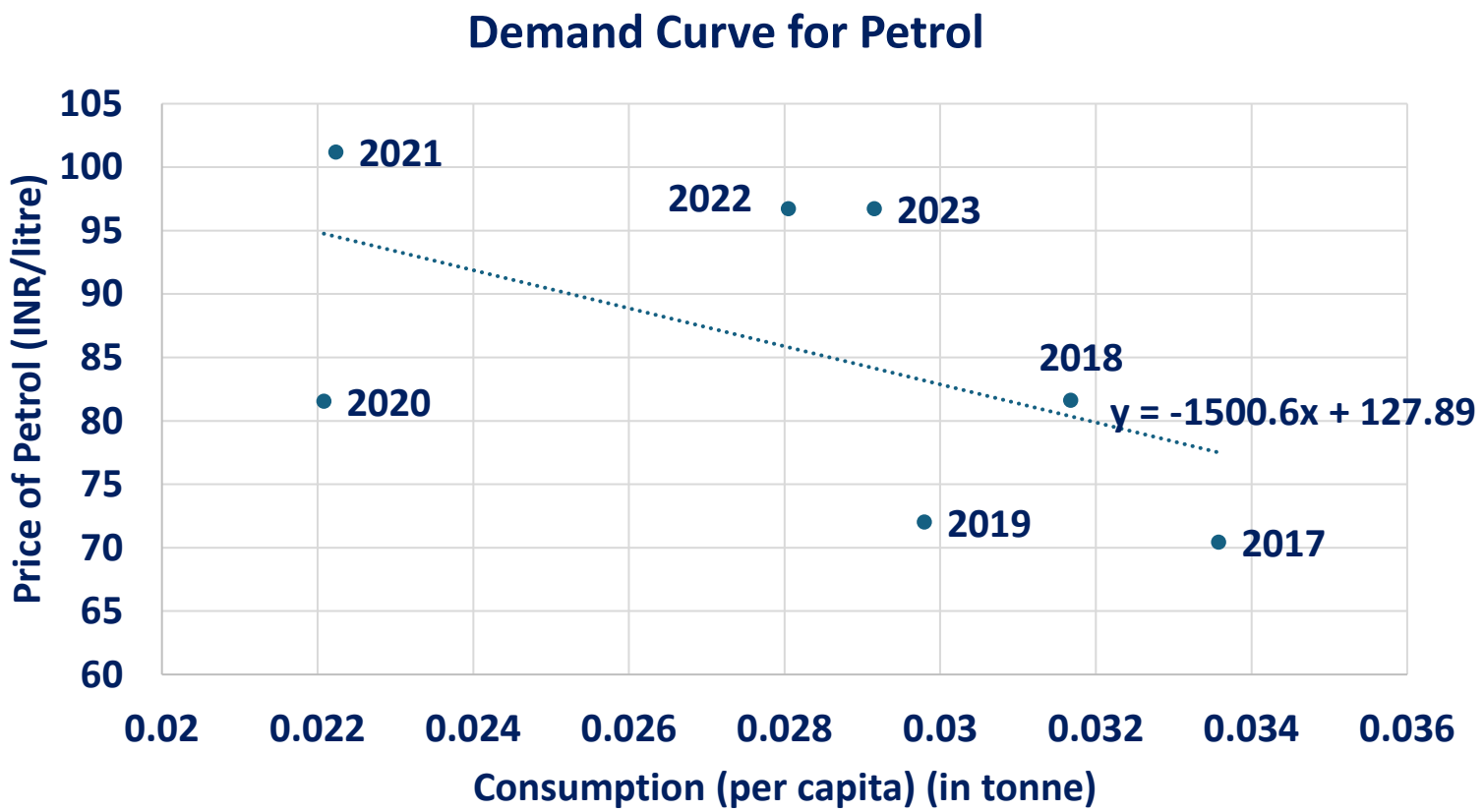
**Inverse demand function (Alfred Marshall, 1890)**

$$P_D = f(Q_D)$$

$$P_D = 14 - (\frac{1}{5})Q_D$$

# Real-world Example: Demand Function

## Demand for Petrol in Delhi (2017-2023)




Sources: PPAC for price and quantity sold in Delhi, Statista for population

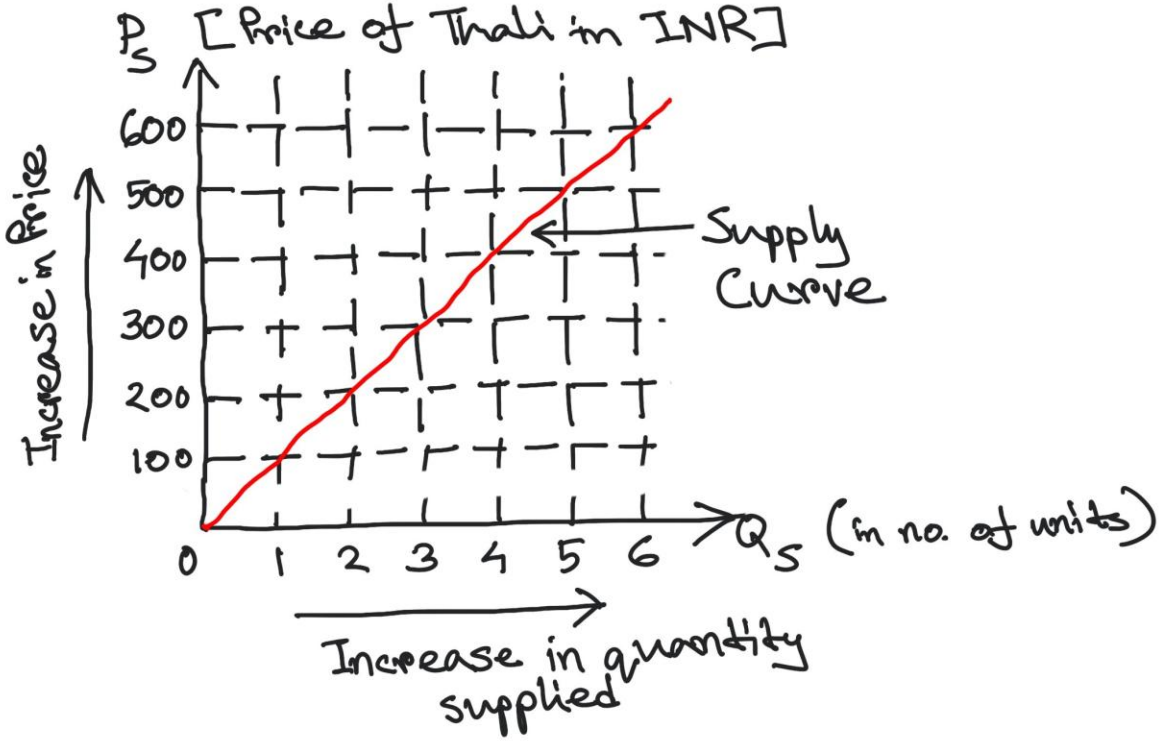
# Supply

- **Quantity supplied-** It is the amount of a good (or service) that sellers are willing and able to sell
- What the seller wants (and is able) to sell may depend on many factors- **the price of the good**, the **price of inputs**, the **technology** used in production, **expectations**, etc.
- **Inputs**- Salary of the cook, the price of rice; wheat; veggies; spices etc. (***THALI* example!**)
- **Technology**- Use of **roti machines** vs. **manual process**
- **Law of supply-** It states that other things being equal or constant (*ceteris paribus*), the quantity of a good supplied increases as the price of the good increases (**positive relationship between price and quantity demanded**)
- **To produce more firms incur greater costs, to cover that price needs to be higher (also, higher price means more money, so firms produce more)**
- **Supply schedule**- A tabular representation of the quantity of good supplied at different price levels (for a good) prevailing in the market
- **Supply curve**- A graphical representation of the relationship between price and quantity of a good supplied in the market

# Supply: Individual's Supply

## Supply Schedule – Supply of THALI (in a week)

| Price of THALI (in INR) ($P_D$) | No. of THALIs Supplied ($Q_D$) |
|---|---|
| 0 | 0 |
| 100 | 1 |
| 200 | 2 |
| 300 | 3 |
| 400 | 4 |
| 500 | 5 |
| 600 | 6 |




**Supply Curve**

- Supply curve plots the combination of (quantity supplied, price) pairs
- **Supply curve is upward sloping** (+ve relationship)- At higher prices, selling more quantity is profitable
- Movement along the curve- **Expansion/Contraction of supply**

# Supply: Market Supply

- Suppose there are only two sellers of THALI in the market – DH2 (A) and DH3 (B)

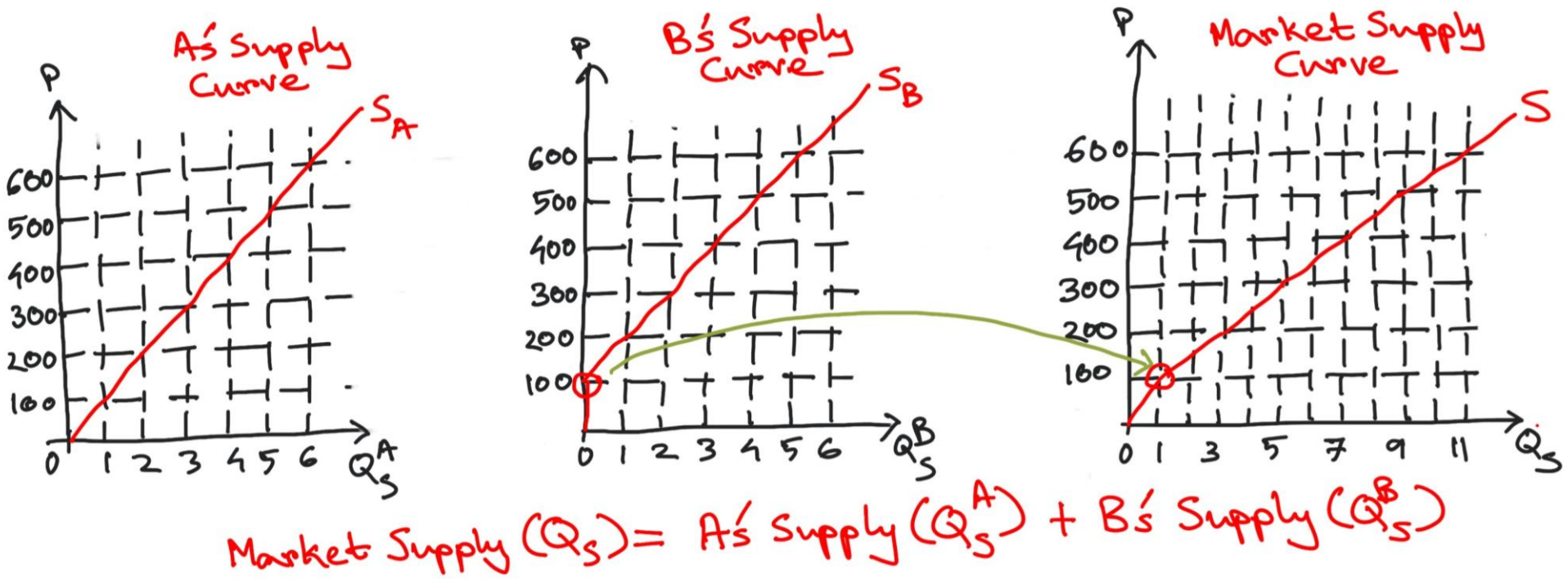
**Market Supply Schedule – Supply of THALI (in a week)**

| Price of THALI (in INR) (P) | No. of THALIs Supplied by A ($Q_S^A$) | No. of THALIs Supplied by B ($Q_S^B$) | Market Supply of THALI ( $Q_S = Q_S^A + Q_S^B$) |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 100 | 1 | 0 | 1 |
| 200 | 2 | 1 | 3 |
| 300 | 3 | 2 | 5 |
| 400 | 4 | 3 | 7 |
| 500 | 5 | 4 | 9 |
| 600 | 6 | 5 | 11 |

- Market supply- The quantity supplied in the market is the sum of the quantities supplied by all the sellers

# Supply: Market Supply

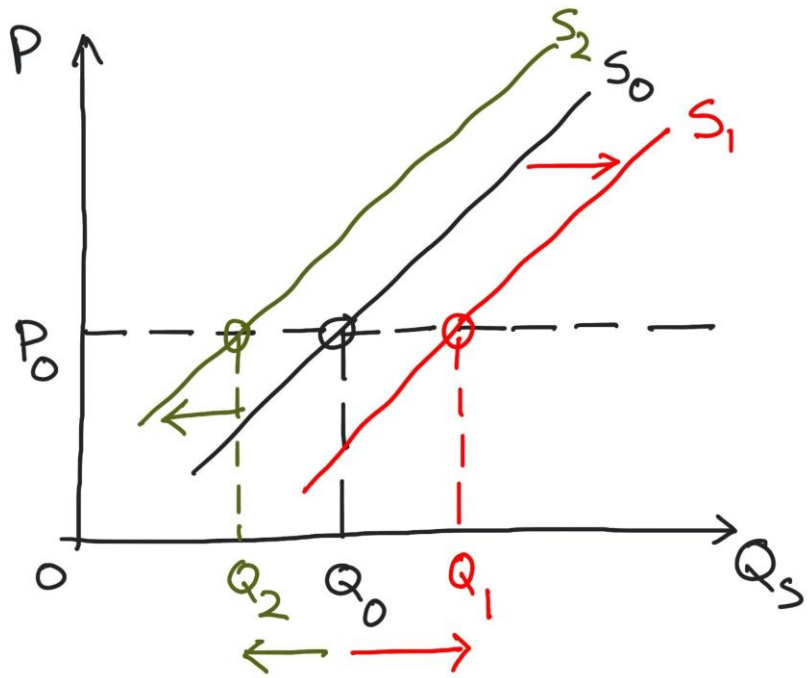
## Derivation of Market Supply Curve




- **Market supply curve**- It is the quantity supplied in a market at various prices
- **Horizontal summation** of individual supply curves

# Supply: Shifts in Supply Curve

- Market supply curve shifts when, at a given price, the quantity supplied changes
- Why does the supply curve shift?
  - Quantity supplied depends on several factors other than the price of the good supplied
    - Prices of the inputs used to produce the good
    - Technology of production
    - Expectations about the future
    - Number of sellers in the market
  - Violation of the ***ceteris paribus*** assumption (war)

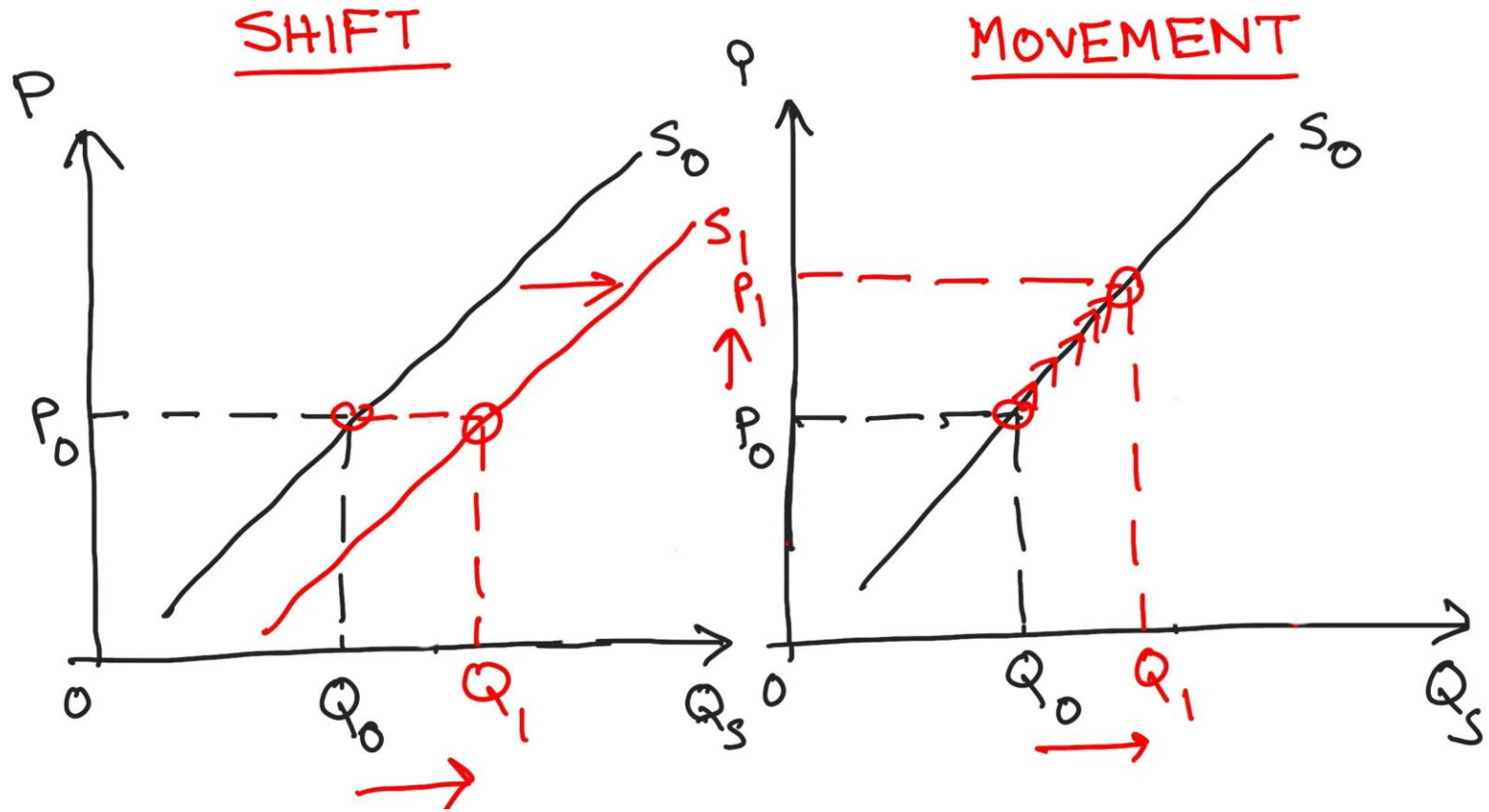



**Shifts in Supply Curve of THALI**

## Examples

- The cooks demand higher salaries--- Impact? [Input prices rise- **Left shift in supply curve**]
- Roti-maker machine is introduced--- Impact? [Better technology- **Right shift in supply curve**]
- Sellers expect the hostel authorities to increase the price of THALI (**non-perishable**) next month--- Impact? [Favourable expectation about future- **Left shift in supply curve for THALIs now**]
- Suppose DH4 (new) also starts serving dinner THALI--- Impact? [More seller- **Right shift in supply curve**]

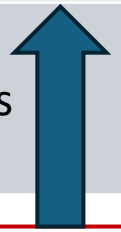
# Supply: Shifts vs. Movement




- **Shift-** Any policy that encourages/discourages the sellers to increase/decrease supply (at the same price) would shift the supply curve to right/left
- **Movement along-** Any policy that increases/decreases price indicates a rise/fall in quantity supplied- Quantity **extension**/Quantity **contraction**

# Supply Curve: Impact of Changes

| Variable | Movement or Shift in Supply Curve with a Change in Variable | Example |
|---|---|---|
| Own price | Movement along the curve | Price increase → Selling more is profitable → Sellers increase supply |
| Price of inputs | Shift of the curve | Input prices rise → Less profitable to sell at the same price → Left shift in supply curve |
| Technology of production | Shift of the curve | A new technology makes it faster to serve THALI → At the same price seller can sell more → Right shift in supply curve of Thali |
| Expectations | Shift of the curve | Sellers today expect the price of cellphones to go up in future → Selling cellphones at today's price is less profitable → Left shift in supply curve of cellphones |
| Number of sellers | Shift of the curve | A new Android phone manufacturer enters the market → There are more sellers in the market (at the same price) → Right shift in supply curve |



When a firm puts some of its current products into storage, it is called **inventory accumulation** and when it supplies products from its inventory, it's called **inventory decumulation**

# Supply Function

**Supply function:**

$$Q_S = f(P_S, I, T, E)$$

Where,

$Q_S$ = quantity of the good (say X) supplied
$P_S$ = price of the good X
I = input prices
T = technology
E = Expectation about future

**The supply function (quantity supplied vs. price, *ceteris paribus*):**

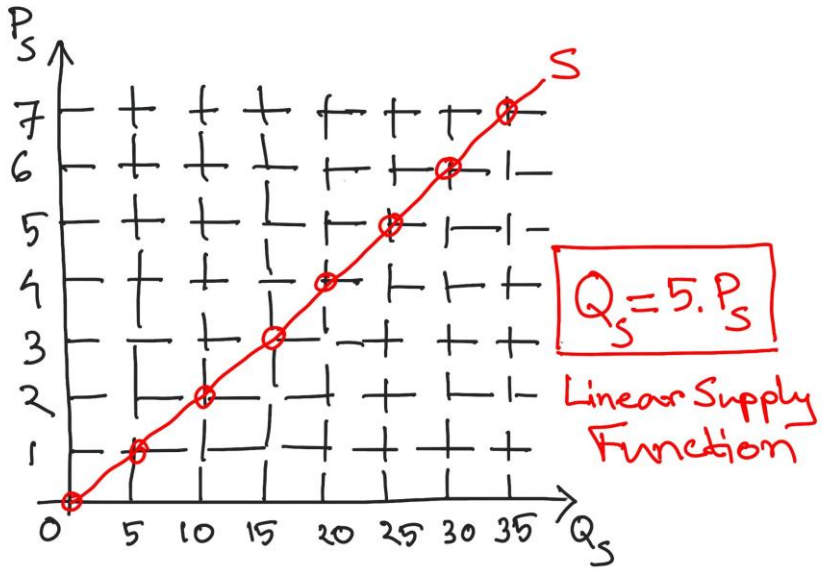
$$Q_S = f(P_S)$$

# Supply Function

**The supply function in linear form (no supply when P= 0):**

Slope

$$Q_S = m.P_S$$




**Inverse supply function**

$$P_S = f(Q_S)$$

$$P_S = (\frac{1}{5})Q_S$$

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# Economics for Business - I

## Equilibrium in the Goods Market

# Equilibrium: Demand-Supply Interaction

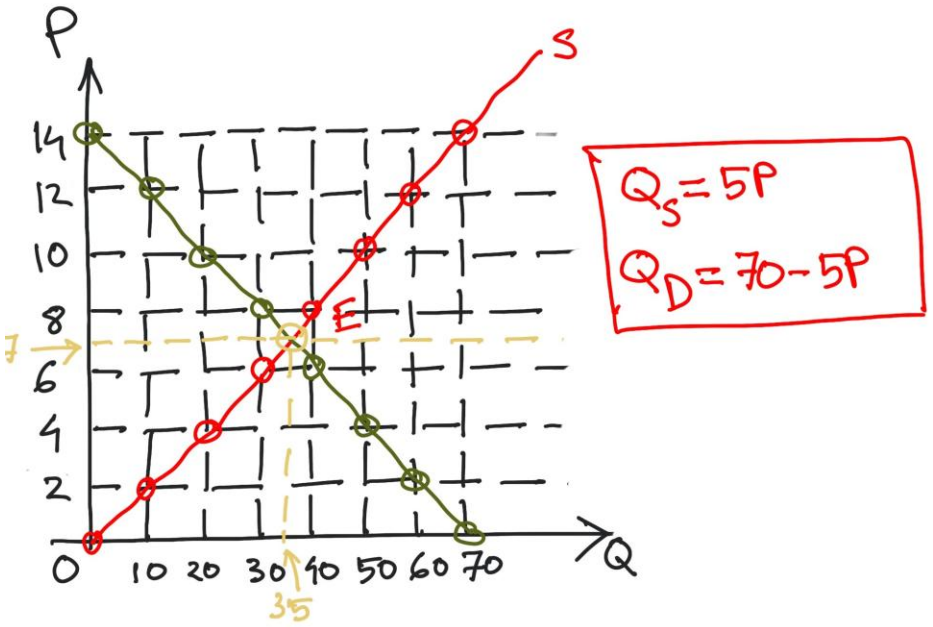
- Downward-sloping demand curve and Upward-sloping supply curve
- **A market facilitates exchange where buyers and sellers interact**
- **Market Equilibrium-** A situation where the market price ensures that the quantity demanded by buyers exactly matches the quantity sellers supply
- **Equilibrium price-** The price at which **Demand = Supply**
- **Equilibrium quantity-** The quantity supplied and demanded at the equilibrium price

Assume the following demand and supply functions---

$Q_D = 70 - 5.P$

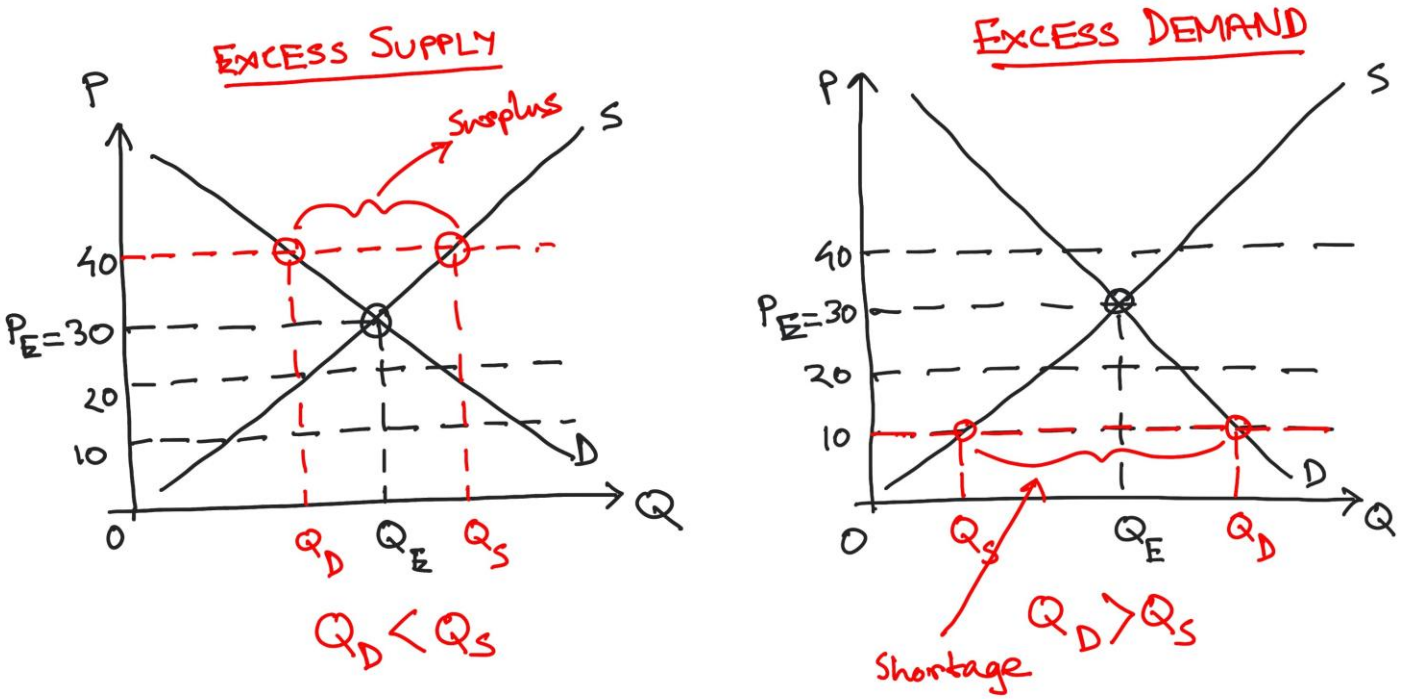
$Q_S = 5.P$

**Solve for the equilibrium price and quantity**



# Equilibrium: Excess Demand/Supply

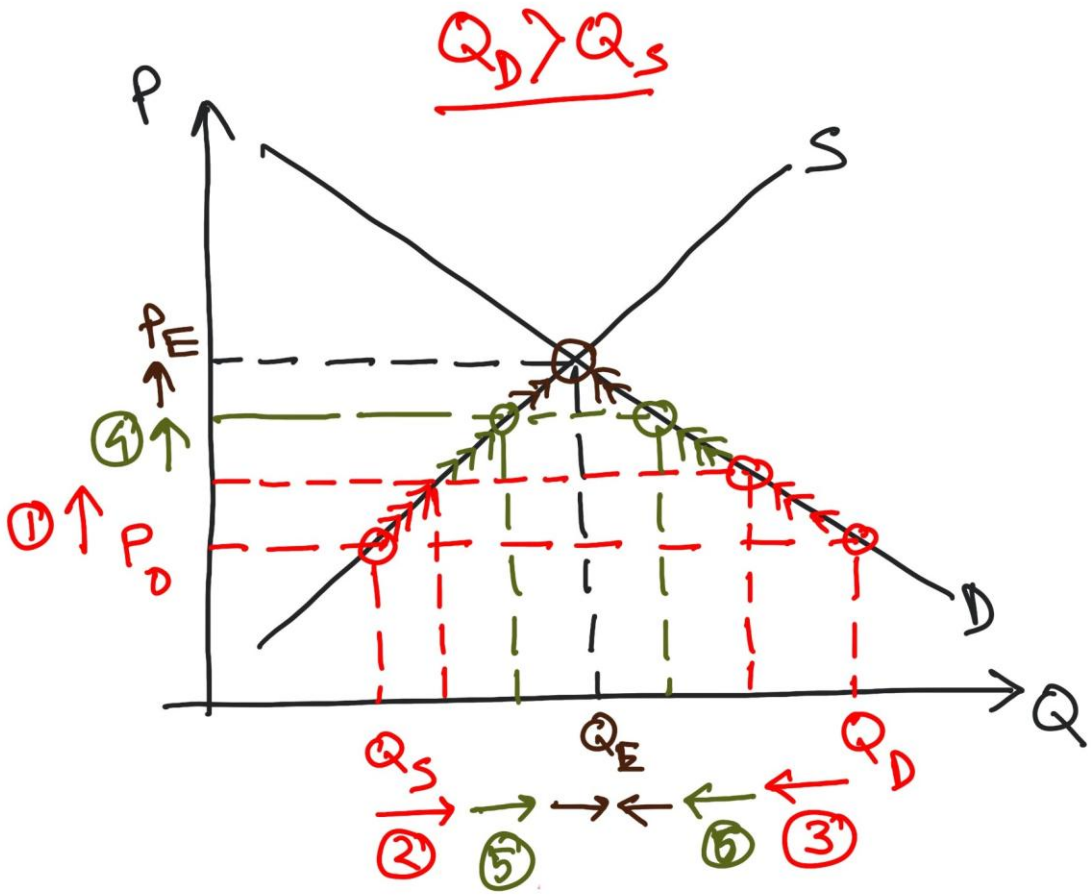
What happens when, at any given price, the demand and supply do not match??? **The market is not in equilibrium.**




- Equilibrium price is $P_E = 30$ at which $Q_E$ amount of the good is being bought and sold
- At P = 40, sellers are willing to sell ($Q_S$) more than what the buyers want ($Q_D$)- It is called **Excess Supply** in the market or **Surplus**
- At P = 10, sellers are willing to sell ($Q_S$) less than what the buyers want ($Q_D$)- It is called **Excess Demand** in the market or **Shortage**

# Disequilibrium: Adjustments

Market forces ensure that equilibrium is reached---- How does it happen in a situation of Excess Demand?




At $P_0$ there is excess demand for the good → Producers have incentive to increase price → Higher price increases supply and reduces demand

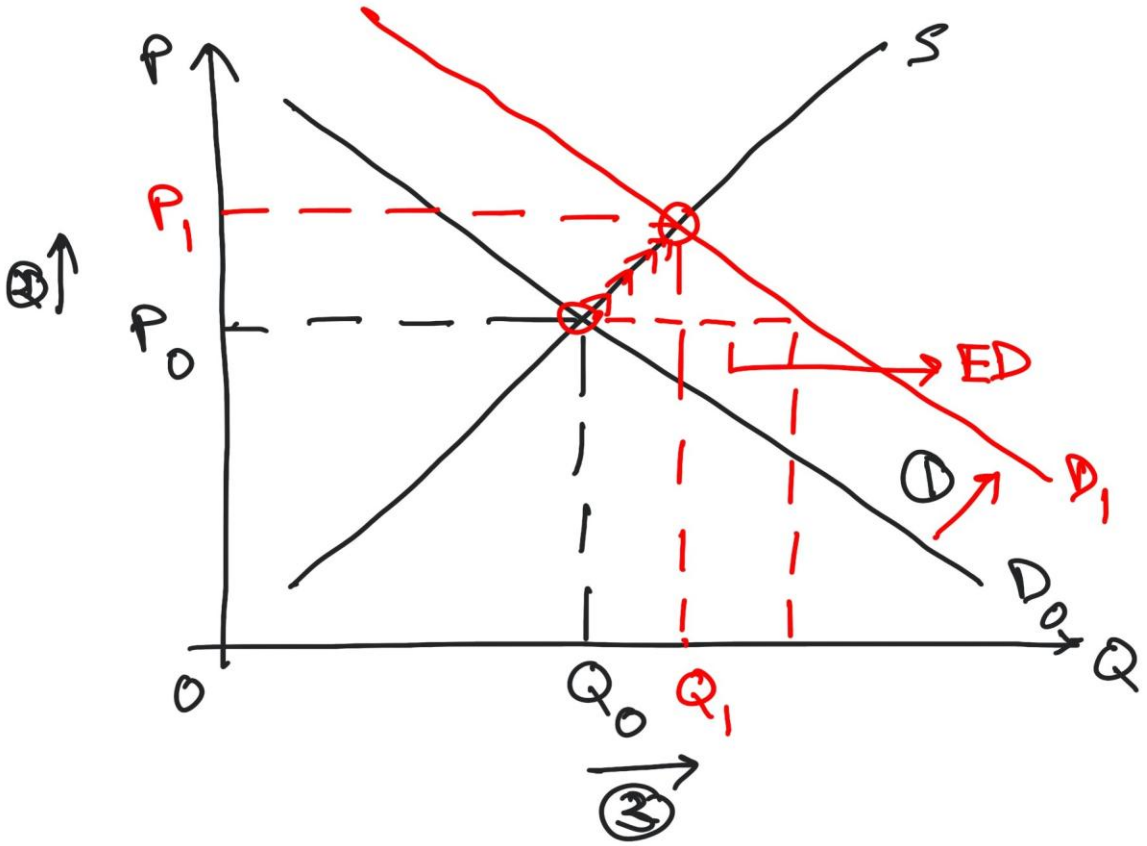
**Price adjustment followed by quantity adjustment → keeps occurring till $Q_D = Q_S$ or equilibrium is established**

**Price is the baton used by "invisible hand"**

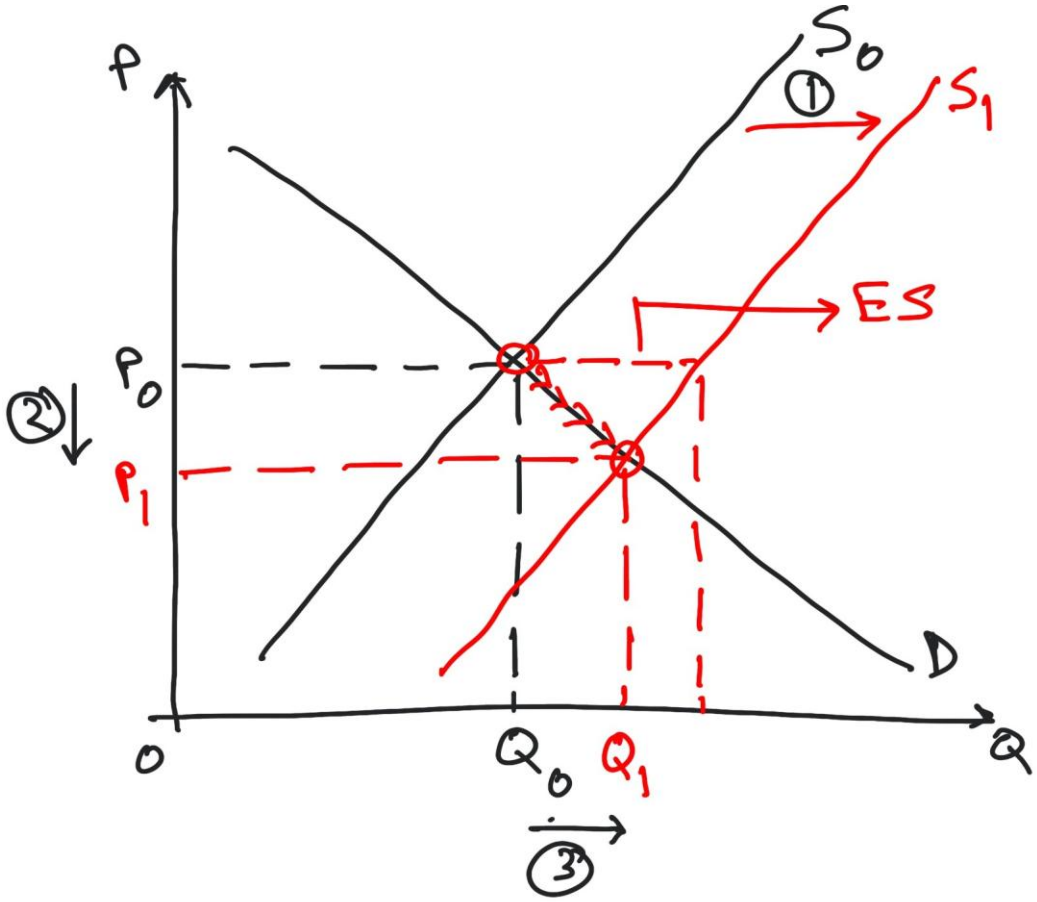
**What will happen in the case of Excess Supply?–** Price falls, which triggers quantity response, till market reaches equilibrium

# Shift in Demand or Supply Curve: Equilibrium

What happens to equilibrium quantity and prices when there is a shift in the demand curve?

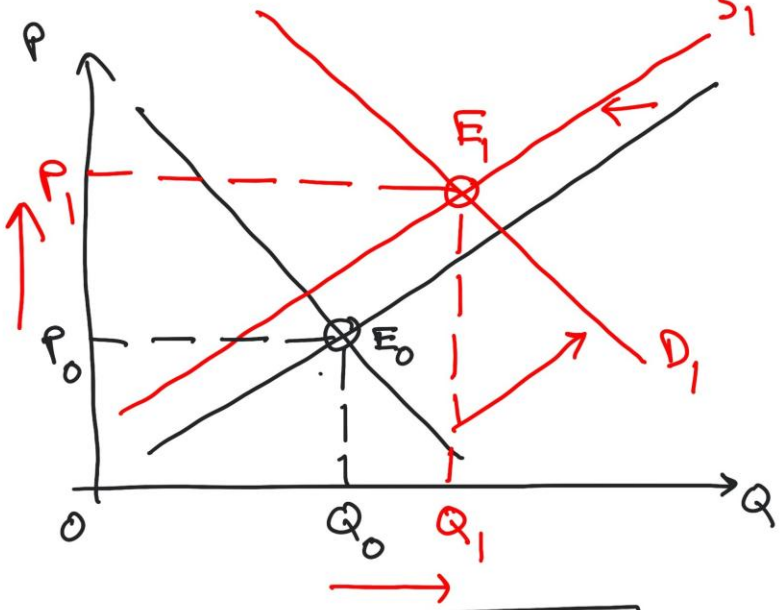



What happens to equilibrium quantity and prices when there is a shift in the supply curve?

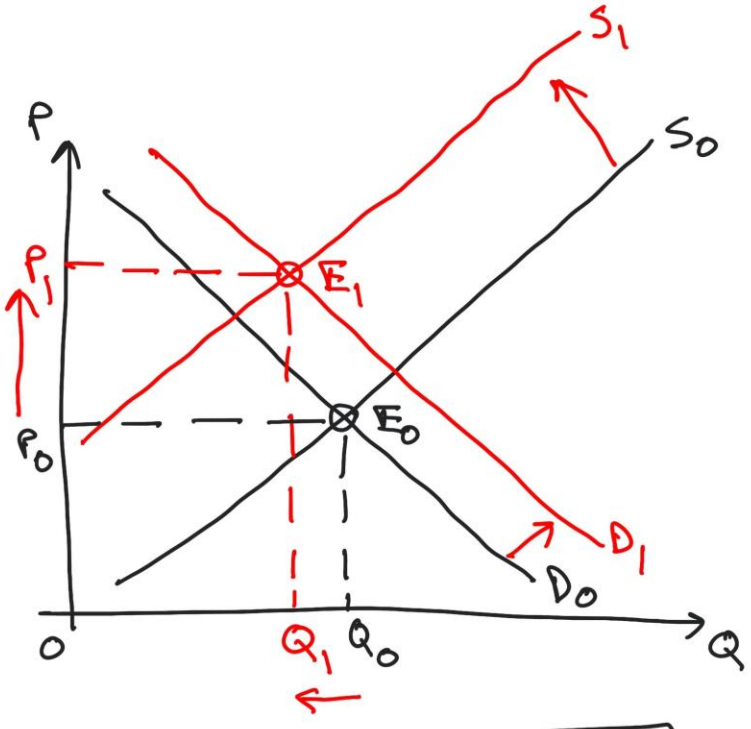


# Shift in both Demand & Supply Curves: Equilibrium

What happens to equilibrium quantity and prices when there is a shift both the demand and supply curves?




Demand increases more than the fall in supply

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