

Managerial Economics #1

Economist's Guide

IN
THIS
Unit

- Nature and Scope of Business Economics
- Opportunity Cost
- Cost and Benefit
- Rent Seeking Behaviour
- Nature of Profits
- Optimizing Techniques

Amcott Loses \$3.5 Million; Manager Fired

On Tuesday software giant Amcott posted a year-end operating loss of \$3.5 million. Reportedly, \$1.7 million of the loss stemmed from its foreign language division.

At a time when Amcott was paying First National a hefty 7 percent rate to borrow short-term funds, Amcott decided to use \$20 million of its retained earnings to purchase three-year rights to Magicword, a software package that converts generic word processor files saved as French text into English. First-year sales revenue from the software was \$7 million, but thereafter sales were halted pending a copyright infringement suit filed by Foreign, Inc. Amcott lost the suit and paid damages of \$17 million. Industry insiders say that the copyright violation pertained to "a very small component of Magicword."

Ralph, the Amcott manager who was fired over the incident, was quoted as saying, "I'm a scapegoat for the attorneys [at Amcott) who didn't do their homework before buying the rights to Magicword. I projected annual sales of \$7 million per year for three years. My sales forecasts were right on target".



W H Y ?

MANAGERIAL ECONOMICS

A manager generally has responsibility for his or her own actions as well as for the actions of individuals, machines, and other inputs under the manager's control.

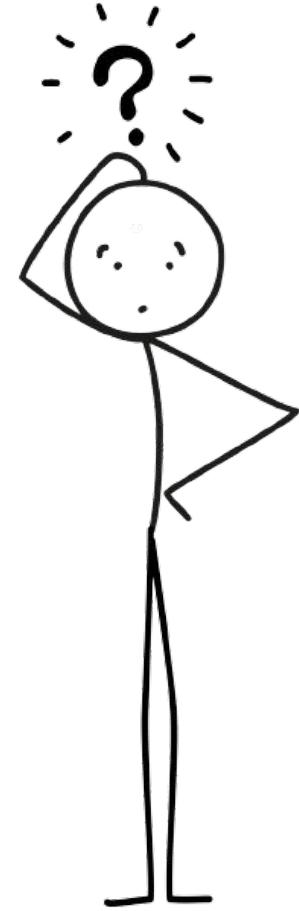
Ralph was fired for his managerial ineptness

Who is a manager?

The one who directs the efforts of others, including those who delegate tasks within an organization such as a firm, a family, or a club

The one who purchases inputs to be used in the production of goods and services such as the output of a firm, food for the needy, or shelter for the homeless

The one who is in charge of making other decisions, such as product price or quality



What is Economics?

Going Through Different Situations.....

Situation #1

The Walt Disney Company manages theme parks throughout the world, including Disneyland in California, Disneyworld in Florida, Tokyo Disneyland and Euro-Disney near Paris. These parks attract thousands of visitors a day. Besides spending money within the theme park, the visitors are also the customers of nearby shops, hotels, restaurants and transport services. Recently, the Walt Disney Company planned a large program of investments to upgrade Disneyland. Before commencing the investments, the company purchased much of the property around the theme park.

Situation #2

A personal computer's internal memory handles the complex calculations for graphics and spreadsheets. During the summer of 1988, the management of Apple Computer anticipated a shortage of memory chips and bought several hundred million dollars of 1-megabit chips at an average cost of \$38. To recoup this cost, Apple's management raised prices across the entire Macintosh line. By January 1989, however the shortages in the memory chip market eased, with the average cost falling to \$23. Apple, nonetheless, maintained the prices of its computers.

Situation #3

The Limits of Growth, one of the 1970's most influential books, predicted that the world would run out of gold by 1983, silver by 1988, and oil by 2003. The publication of the book coincided with a sharp increase in the prices of oil and other minerals. The Limits to Growth sparked an intense debate among policymakers around the world. Some experts, citing the sharp price increases, called for urgent government regulation to avert catastrophe. By contrast, however, most economists were confidently optimistic and argued that the price increases were a good sign.

Situation #4

Stella is 3 months' pregnant. Both she and her husband, Frank work as system analysts in the same company. The company offers such couples the choice of eight weeks' paid paternity or maternity leave - either the father or mother may take the leave but not both.

NOW

let's
think

Curiosity #1

Why did the Walt Disney Company buy the surrounding property before upgrading the theme park?



Curiosity #2

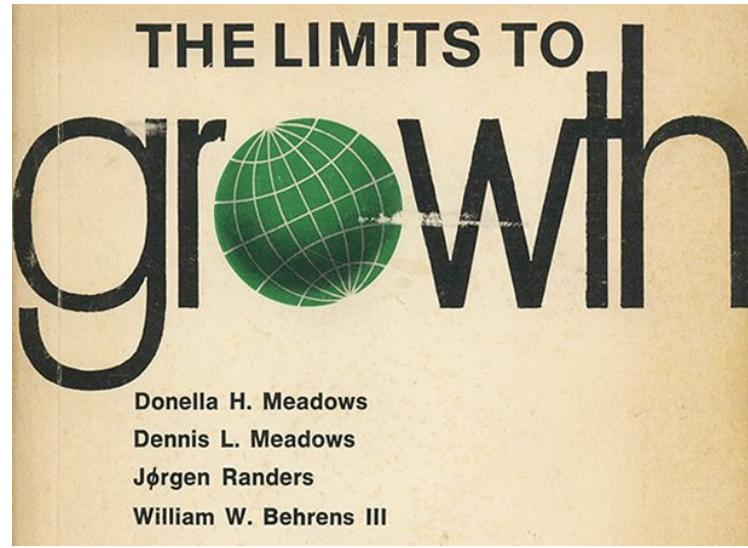
Was it a correct decision on Apple not to reduce the price of its computers even when its cost has decreased?



Apple Computer, Inc.

Curiosity #3

Why were the economists confidently optimistic and argued that the price increases were a good sign when the whole world was panicking?



Curiosity #4

Whether the wife or the husband should take the maternity/paternity leave?



What is the common problem faced in all 4 Situations?

- Scarcity (of resources, of time)

Why SCARCITY then?

Human Wants > Available Resources

Resources, Resources & Resources

- Resources are Scarce in Nature
- Resources have alternative uses

So WHAT then? Where does it lead to.....???

- Need to make Decision on Choices Available

Managers making decisions on CHOICES Available

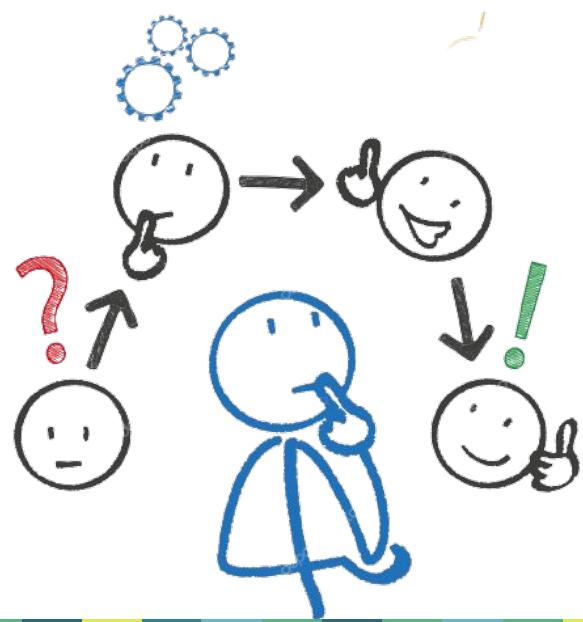
- Marketing managers have the responsibility of for the cost of what they sell
- Financial managers must bear the cost of financial resources
- Government must set policies with respect to finite stocks of oil and gas
- Parents have to balance career and family demands within the 24 hours of the day.

What is the main task of a manager?



Why is it so important that a manager should be making GOOD and EFFECTIVE decisions??

To maximize the benefits
with limited resources



How can a Manager make EFFECTIVE Decisions?

1. Identify Goals and Constraints
2. Nature and Importance of Profits
3. Understand Incentives
4. Understand Markets
5. Recognize the Time Value of Money
6. Use Marginal Analysis
7. Make Data Driven Analysis



Managerial Economics - Defined

The study of how to direct scarce resources in the way that most efficiently achieves a managerial goal/s.

Managerial Economics is the application of economic theory and methodology to decision making problems faced by private, public and non-profit organizations.

Studying Managerial Economics

- Foundation of business decision making
- To estimate economic relationship
- Useful to understand business environment
- Useful for pricing decision
- Prediction of relevant economic quantities

Why Managerial Economics?

In each case, a sensible analysis of what decision to make requires a careful comparison of the advantages and disadvantages (often, but not always, measured in money terms) of alternative courses of action.

These decisions are also all economic decisions.



Managerial Economics - OBJECTIVES

- To provide a guide to making good managerial decisions
- To use formal models to analyze the effects of managerial decisions on measures of a firm's success(sheds light on cost, demand, profit, competition, pricing, compensation, market entry strategy etc.)



Is Microeconomics and Managerial Economics the same??

YES / NO



Scope and Methodology of Managerial Economics



Microeconomics Vs. Managerial Economics

- Microeconomics focuses on the analysis of the market - its descriptive
- Managerial economics focuses on managerial behavior - its prescriptive



What does Managerial Economics do?

- **Is an integrative course**
 - Brings the various functional areas of business together in a single analytical framework
- **Exhibits economies of scope**
 - Integrates material from other disciplines
 - Reinforces and enhances understanding of those subjects

What does Managerial Economics do?

- Brings the various functional areas of business together in a single analytical framework
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- Reinforces and enhances understanding of those subjects

The Theory of The Firm

- Managerial Objective

- Make choices that increase the value of the firm
- The value of the firm is the present value of future profits

Present value of
expected future profits = $\frac{\pi_1}{1+i} + \frac{\pi_2}{(1+i)^2} + \dots + \frac{\pi_n}{(1+i)^n}$

$\pi_1, \pi_2, \dots, \pi_n$ = Expected future profit on different time periods 1, 2, ..., n
r = Rate of interest or appropriate discount rate

Why are Managerial choices important?

- because they influence total revenue by managing demand
- because they influence total cost by managing production
- because they influence the relevant interest rate by managing finances and risk



What are the Managerial Constraints?

- Available technologies
- Scarcity of Resources
- Legal or contractual limitations



What is Profit?

- Two Measures of Profit
 - Accounting Profit
 - Economic Profit



Before Accounting/Business Profit and Economic Profit

- Explicit Cost
- Implicit Cost
- Economic Cost



Before Accounting/Business Profit and Economic Profit

- **Explicit Cost:** It is the payment made by a firm for the use of inputs purchased or hired from outside or others. It is the cost of inputs which requires an expense of money by the firm. For eg. wages to the hired labor, interest on borrowed capital, rent on land and buildings, expenditure on raw materials etc. that appear in books of account of the firm. So it is also known as **Accounting Cost**.

Before Accounting/Business Profit and Economic Profit

- **Implicit Cost:** It is the value of factors owned and used by the firm on the process of production. For eg. entrepreneur's own capital investment, entrepreneur working in his own firm as manager. If s/he lends out these factors to others s/he earns rent, wages, interest – this is the implicit cost (opportunity cost).
- **Economic Cost = Explicit Cost + Implicit Cost**

Types of Profit

- **Accounting or Business Profit** : Sales Revenue minus the explicit or accounting cost of doing business.
- **Business Profit (Accounting Profit)**
= Total Revenue – Explicit Costs/Accounting Cost
- **Explicit cost is the price of inputs hired or purchased from outside**

Types of Profit

- **Economic Profit:** Sales Revenue minus economic costs (explicit cost + implicit cost).
- **Economic Profit**
= Total Revenue – Economic Costs
= Total Revenue – (Explicit Costs + Implicit Costs)
- **Implicit cost is the price of inputs owned and used by entrepreneur himself.**

NUMERICAL Example #1

A woman is working in a large garment factory earning Rs. 15,000 per month who decides to open a small tailoring shop of her own. She runs the operating by herself without hired help and invests no money of her own. She takes premises and machines on rent for Rs.10,000 per month and Rs.30,000 per month respectively. She spends Rs.15,000 per month on supplies, electricity, telephone and so on. During the month her gross earning or total revenue is Rs.65,000.

- a. How much are the explicit costs of this business?
- b. How much are the implicit costs of this business?
- c. Calculate economic costs.
- d. Calculate business profit and economic profit.
- e. Should this woman remain in business?

NUMERICAL Example #1 - Solution

A woman is working in a large garment factory earning Rs. 15,000 per month who decides to open a small tailoring shop of her own. She runs the operating by herself without hired help and invests no money of her own. She takes premises and machines on rent for Rs.10,000 per month and Rs.30,000 per month respectively. She spends Rs.15,000 per month on supplies, electricity, telephone and so on. During the month her gross earning or total revenue is Rs.65,000.

a. How much are the explicit costs of this business?

= Rent of Premises + Rent of Machines + Expenses on Supplies,
electricity, telephone etc.

$$= 10,000 + 30,000 + 15,000$$

$$= \text{Rs. } 55,000$$

NUMERICAL Example #1 - Solution

A woman is working in a large garment factory earning Rs. 15,000 per month who decides to open a small tailoring shop of her own. She runs the operating by herself without hired help and invests no money of her own. She takes premises and machines on rent for Rs.10,000 per month and Rs.30,000 per month respectively. She spends Rs.15,000 per month on supplies, electricity, telephone and so on. During the month her gross earning or total revenue is Rs.65,000.

b. How much are the implicit costs of this business?

= Foregone earnings of Precious job

= Rs. 15,000

NUMERICAL Example #1- Solution

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c. Calculate economic costs.

= Explicit Cost + Implicit Cost

= 55,000 + 15,000

= 70,000

NUMERICAL Example #1 - Solution

A woman is working in a large garment factory earning Rs. 15,000 per month who decides to open a small tailoring shop of her own. She runs the operating by herself without hired help and invests no money of her own. She takes premises and machines on rent for Rs.10,000 per month and Rs.30,000 per month respectively. She spends Rs.15,000 per month on supplies, electricity, telephone and so on. During the month her gross earning or total revenue is Rs.65,000.

d. Calculate business profit and economic profit.

Business Profit = Total Revenue - Explicit Cost

$$= 65,000 - 55,000 = \text{Rs. } 10,000$$

Economic Profit = Total Revenue - Economic Cost

$$= 65,000 - 70,000 = \text{Rs. } 5,000 \text{ (Loss)}$$

NUMERICAL Example #1 - Solution

A woman is working in a large garment factory earning Rs. 15,000 per month who decides to open a small tailoring shop of her own. She runs the operating by herself without hired help and invests no money of her own. She takes premises and machines on rent for Rs.10,000 per month and Rs.30,000 per month respectively. She spends Rs.15,000 per month on supplies, electricity, telephone and so on. During the month her gross earning or total revenue is Rs.65,000.

e. Should this woman remain in business?

Since the woman is making the loss of Rs. 5000 per month by being in business for herself, she should not remain in business

What does Profit exhibit?

- Measures the quality of managers' decision-making skills
- Measures the performance of the company



What does Profit do?

- Encourages good management decisions by linking profit with incentives



Sources of Profit

- **Innovation**

- Producing products that are better than existing products in terms of functionality, technology, and style

- **Risk taking**

- Future outcomes and their likelihoods are unknown, as are the reactions of rivals.

- **Exploiting Market Inefficiencies (Market Power)**

- Building barriers to entry, employing sophisticated pricing strategies, diversifying, and making good strategic production decisions

Entry

Entry Costs	Sunk Costs	Network Effects	Switching Costs
Speed of Adjustments	Economies of Scale	Reputation	Government Restraints

Michael Porter's Five Forces

The Five Forces Framework

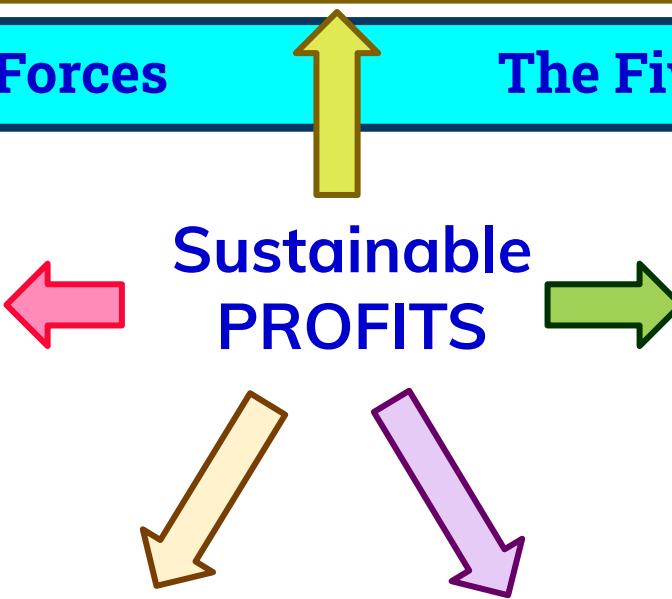
Sustainable PROFITS

Power of Input Suppliers

- Supplier concentration
- Price/Productivity of alternative inputs
- Supplier Switching Costs
- Government Constraints

Power of Buyers

- Buyer Concentration
- Price/ Value of Substitute Products or Services
- Customer Switching Costs
- Government Restraints



Industry Rivalry

- Concentration
- Price, Quantity, Quality or Service Competition
- Degree of Differentiation

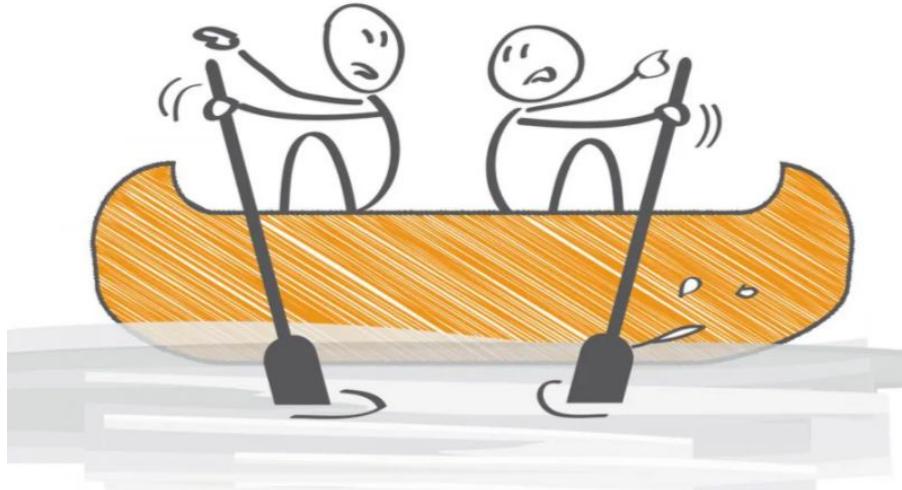
- Switching Costs
- Timing of decision
- Information
- Government Restraints

Substitutes and Complements

- Price/value of surrogate products or services
- Price/value of complementary products or services
- Network Effects
- Government Restraints

Managerial Interests and Principal-Agent Problem

The interests of a firm's owners and those of its managers may differ, unless the manager is the owner.



Managerial Interests and Principal-Agent Problem

- **Separation of ownership and control**
 - The principals are the owners.
 - They want managers to maximize the value of the firm.
 - The agents are the managers.
 - They want more compensation and less accountability.
 - The divergence in goals is the principal-agent problem.

Managerial Interests and Principal-Agent Problem

- Moral Hazard
 - Moral hazard exists when people behave differently when they are not subject to the risks associated with their behavior.
 - Managers who do not maximize the value of the firm may do so because they do not suffer as a result of their behavior.

Managerial Interests and Principal-Agent Problem

- **Solutions**
 - Devise methods that lead to convergence of the interests of the firm's owners and its managers
 - Examples: Stock option plans or bonuses linked to profits

DEMAND & SUPPLY

Demand & Supply : Where do they meet?

- **Market**
 - A group of firms and individuals that interact with each other to buy or sell a good
 - Part of an economy's infrastructure
 - A social institution that exists to facilitate economic exchange
 - Relies on binding, enforceable contracts

Which one of the following is Demand?



To have Rolls Royce
Phantom Limousine

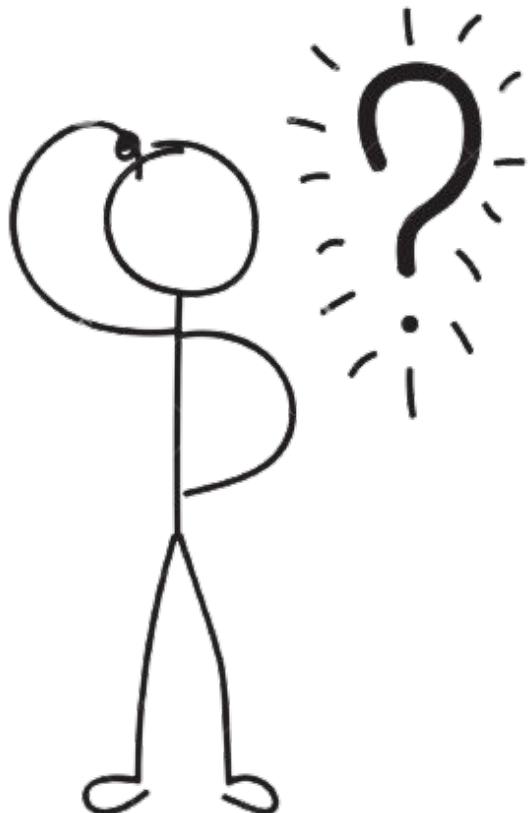


To have Ducati 1299
Superleggera



To have Italian Boarini Milanesi bag

What makes Demand - the Demand?



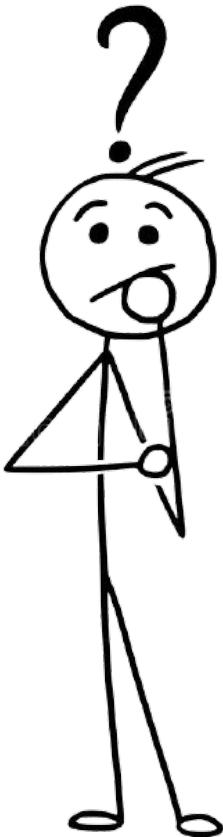
- A. Wish to have something
- B. Desire to have something
- C. Want to have something
- D. Ability to pay for something
- E. Willingness to pay for something

Demand

Your desire to have commodity with the ability and willingness to pay for it combined together will be - demand



What determines Demand?



- A. Price of the Commodity
- B. Price of Substitute Goods
- C. Price of Complement Goods
- D. Income of the Producer
- E. Taste and Preference of the Companies
- F. Season
- G. Culture
- H. Expectation of Rise or Fall in Price by the Firm
- I. Population
- J. Income Distribution

Demand Side of Market: Determinants

$$D_x = f(P_x, P_R, Y, T, E, N, Y_d, A, \dots)$$

D_x = Demand for commodity X

P_x = Price of commodity X

P_R = Price of related goods

(Substitute and Complementary)

Y = Income of the consumers

T = Taste and preference

E = Expectations of the buyers

N = Population

Y_d = Income distribution

Demand Side of Market: Substitutes

These are those goods which are an alternative to one another in consumption eg. Tea or coffee, Pepsi or Coca cola

A fall in the price of substitute good say Y, leads to a fall in the quantity demanded of good X and vice versa



Demand Side of Market: Complements

They are those goods which are jointly used or consumed together to satisfy a want eg. Tea and sugar, bread and butter.

A fall in the price of complementary good say Y, leads to a rise in the quantity demanded of good X and vice versa



Demand Side of Market: Income

Normal Vs. Inferior Goods

If X is a Normal Good, then with the increase in the income, consumer buys more of the good. It has positive income effect.

If X is an Inferior Good, then with the increase in the income, consumer buys less of the good. Eg. Coarse Grains. It has negative income effect.

Which one is the
inferior good?



Demand Side of Market: Preferences

A positive taste and preference for good X leads to a rise in the quantity demanded of good X and vice versa.



Demand Side of Market: Expectations

If consumers expect a rise in price of good X in near future it leads to a rise in the quantity demanded of good X and vice versa.



Demand Side of Market: Population

With a rise in population, it leads to a rise in the quantity demanded of goods and vice versa.



Demand Side of Market: Y Distribution

With a rise in population, it leads to a rise in the quantity demanded of goods and vice versa.



Demand Side of Market: Advertisement

Effective advertisement leads to a rise in the quantity demanded of goods and vice versa.



Demand Side of Market: Law of Demand

There is an inverse relationship between the price of a commodity and the quantity demanded of that commodity.

$D_x = f(P_x)$, *ceteris paribus* (other things remaining constant)

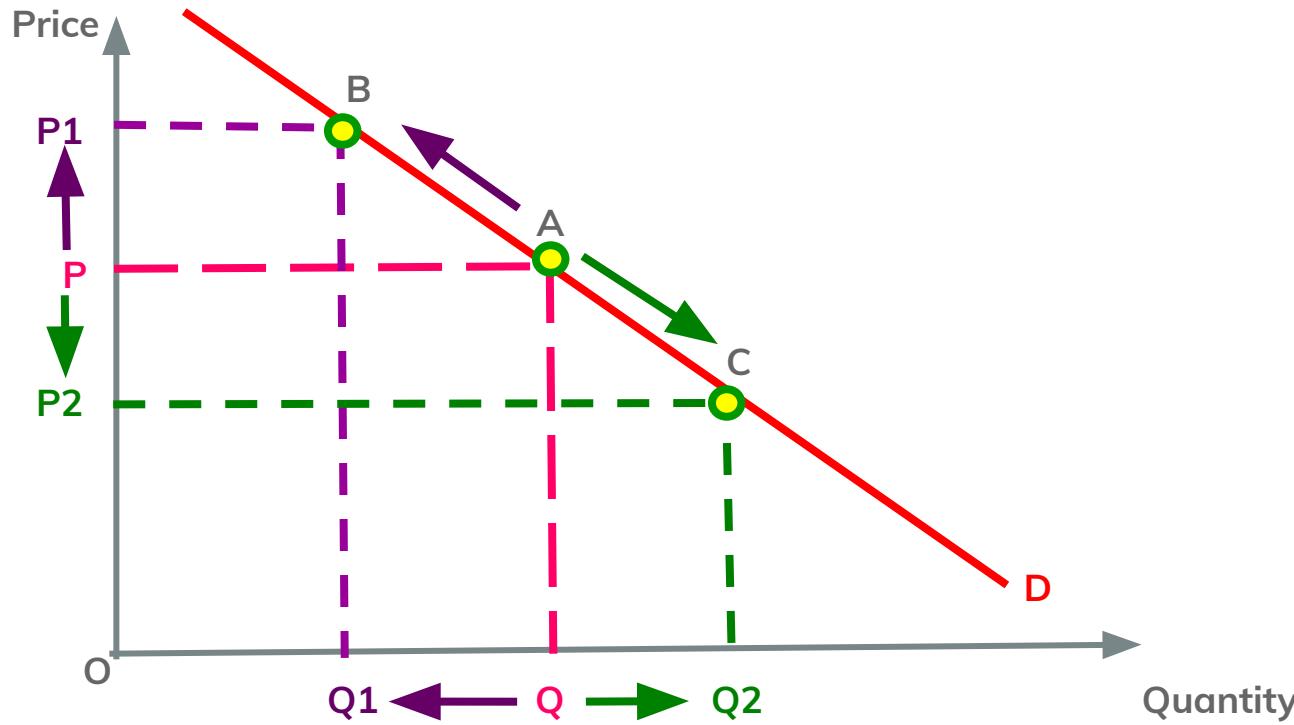
where, D_x = quantity demanded of good X

P_x = price of the good X

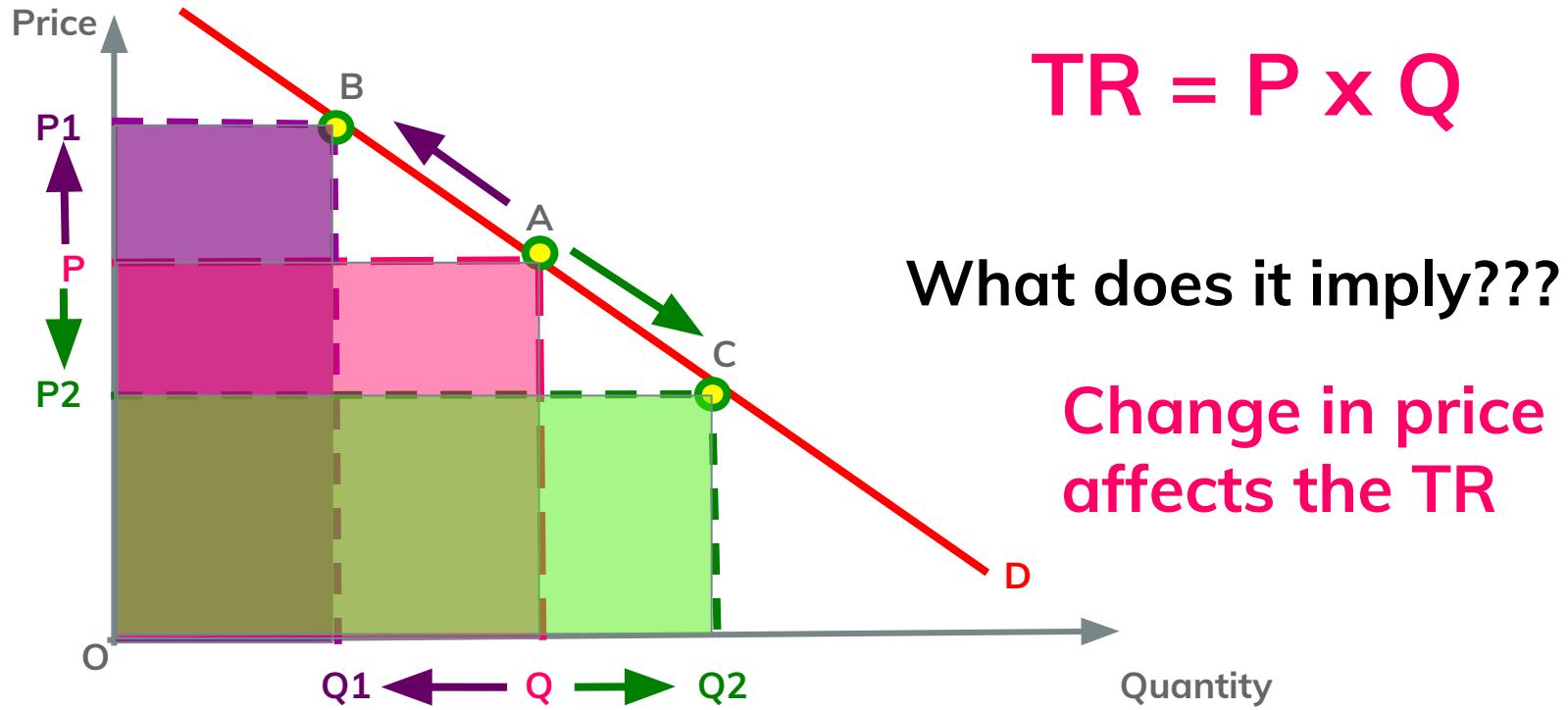
Price ↑

Quantity ↓

What happens to Demand if only the Price of the product changes?



What happens to TR when the Price of the product changes?



Demand Side of the Market

- **Total Revenue Function**
 - A firm's total revenue (TR) for a given time period is equal to the price charged (P) times the quantity sold (Q) during that time period.
$$TR = P \times Q$$
 - The demand function reflects the effect of changes in P on quantity demanded (Q) per time period and, hence, the effect of changes in P on TR.

How Supply is Created?



Which one is the Supply?



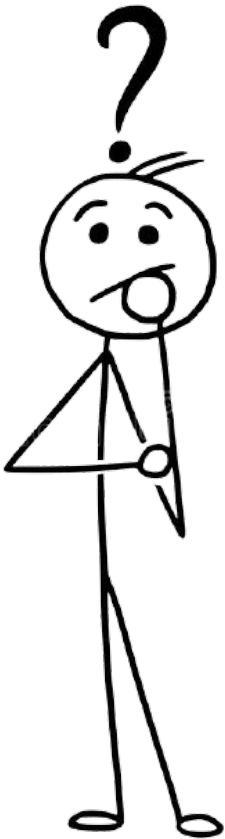
- A. Razia has 3000 laptops in warehouse and 25 in her showroom and 1000 in customs. So supply is 4025 laptops.
- B. Razia has 3000 laptops in warehouse and 25 in her showroom. So supply is 25 laptops.
- C. Razia has made full payments of only 2000 laptops till date and 1000 are on credit. So supply is 2000 laptops.

Supply and Stock

- Stock of a commodity is the total quantity that is available in the market at a certain time.
- Supply is that part of the stock which a seller is ready to sell at a certain price during a certain time. Thus, supply is the part of stock which is actually brought into the market.



What determines Supply?



- A. Price of the Commodity
- B. Price of Related Goods
- C. Income of the Consumer
- D. Taste and Preference of the Firms
- E. Number of Firms
- F. Culture
- G. Expectation of Rise or Fall in Price by the Firm
- H. Population
- I. Income Distribution

Supply Side of Market: Determinants

$$S_x = f(P_x, P_z, N_F, T, P_F, E_x, G_P)$$

S_x = Supply of commodity X

P_x = Price of commodity X

P_z = Price of related goods

N_F = Number of Firms

T = Technological changes

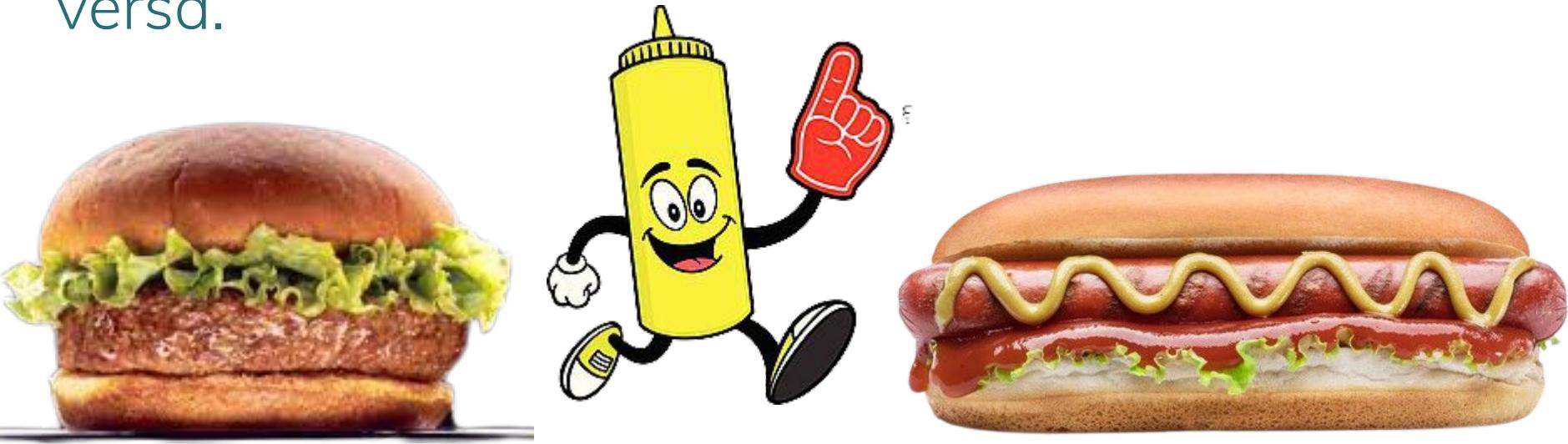
P_F = Price of factors of production

E_x = Expected Future Price

G_P = Government Policy

Supply Side of Market: Price of Related Goods

A fall in the price of a related good say Y, leads to a rise in the quantity supplied of good X and vice versa.



Supply Side of Market: Number of Firms

Increase in the number of firms in the market implies increase in supply and vice versa.



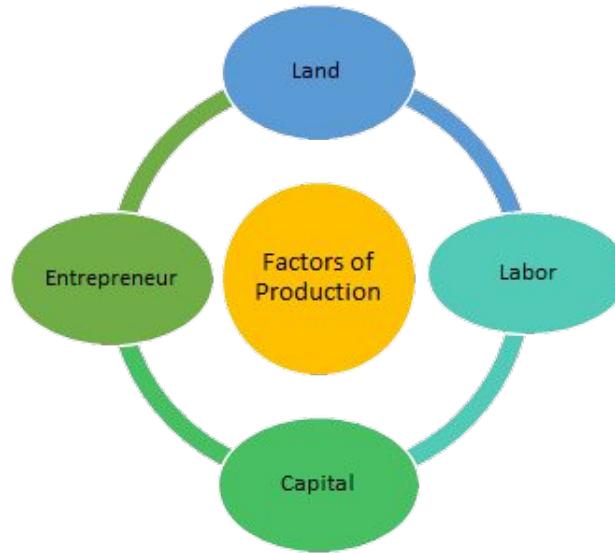
Supply Side of Market: Technology

Improvement in the technique of production reduces cost of production. This leads to increase in profit and hence an increase in supply.



Supply Side of Market: Price of Factors of Production

If the factor price reduces, cost of production also reduces and supply increases and vice versa.



Supply Side of Market: Expected Future Price

If the producer expects the price of the commodity to increase in near future, current supply of the commodity would reduce and vice versa.



Supply Side of Market: Government Policy

Increase in Taxation tends to reduce the supply while increase in Subsidy tends to induce greater supply of the commodity.



Supply Side of Market: Law of Supply

There is a direct relationship between the price of a commodity and the quantity supplied of that commodity.

$$S_x = f(P_x), \text{ceteris peribus}$$

where,

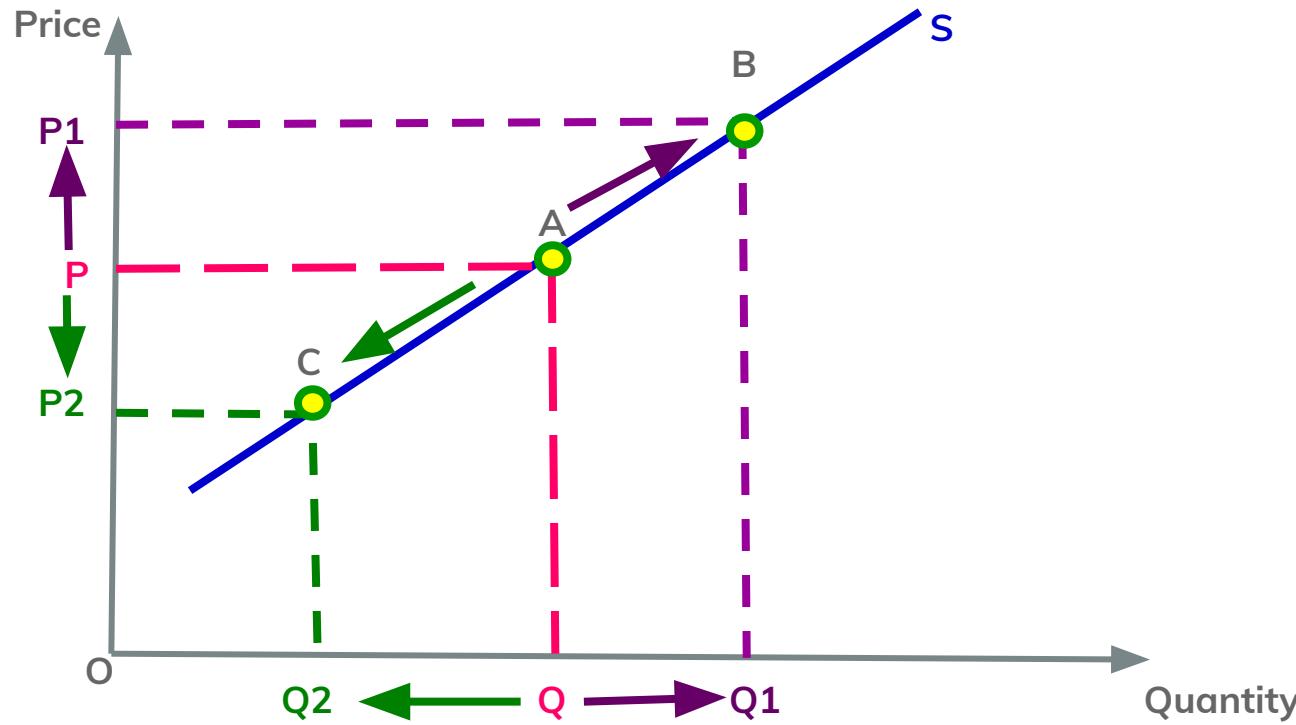
S_x = quantity supplied of good X

P_x = price of the good X

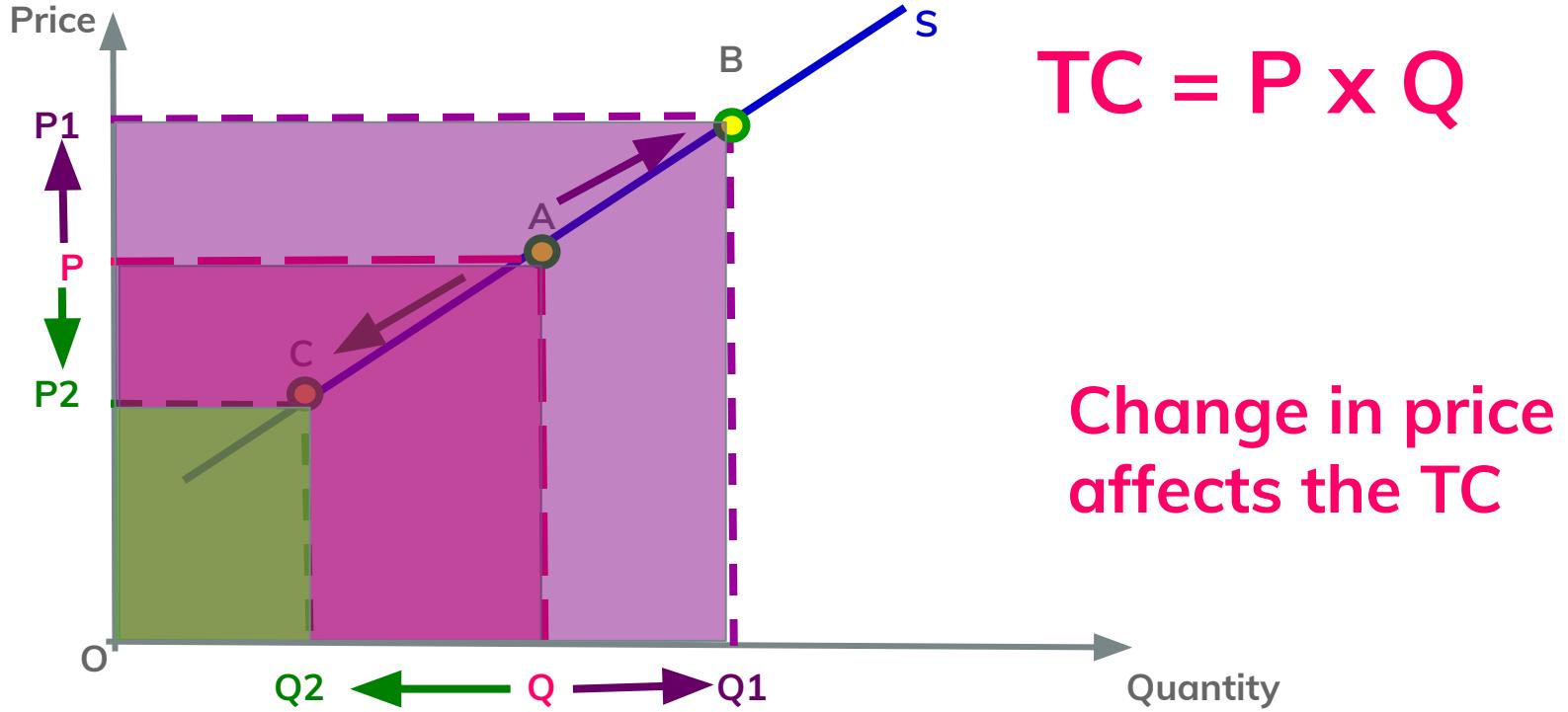
Price ↑

Quantity ↑

What happens to Supply if only the Price of the product changes?



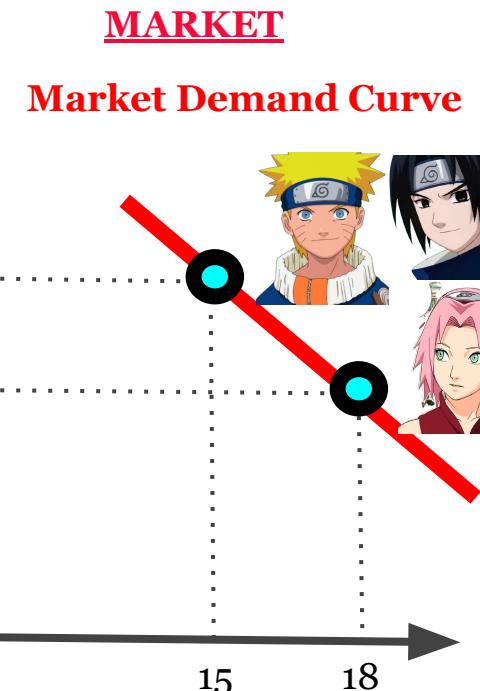
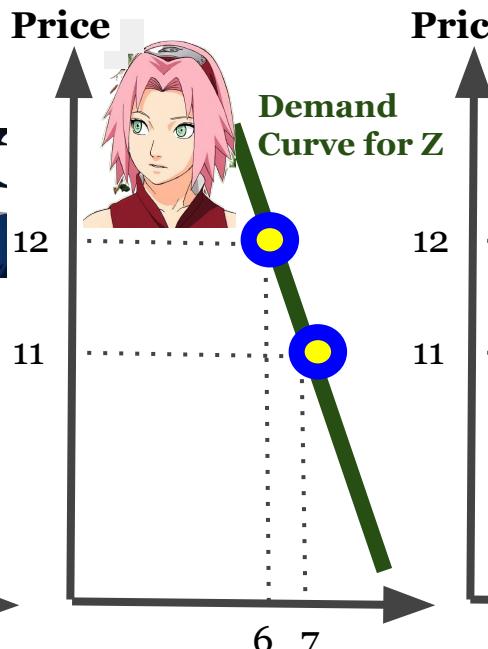
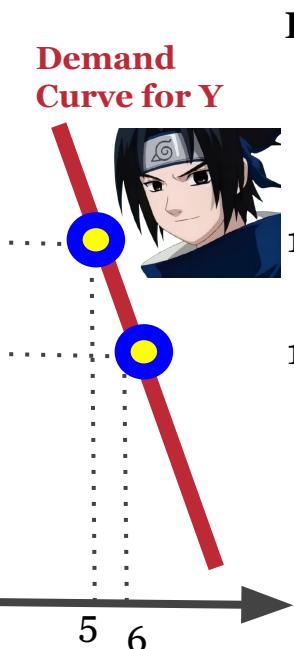
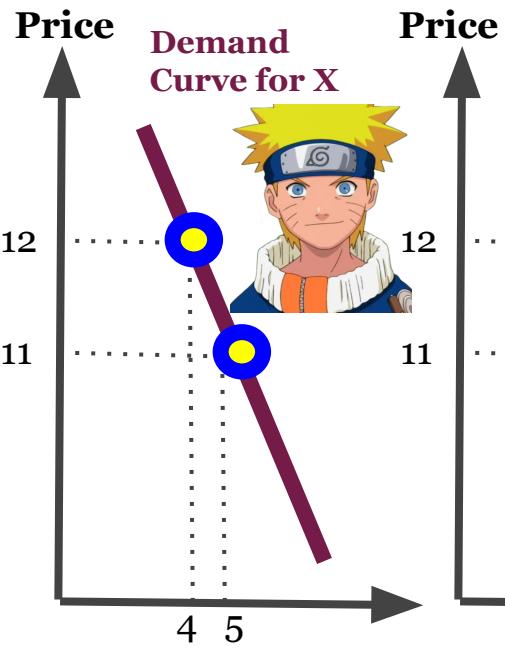
What happens to TC when the Price of the product changes?



Market Demand

Price	QD by X	QD by Y	QD by Z	Market Demand
15	3	2	3	6
14	4	3	4	9
13	5	4	5	12
12	6	5	6	15
11	7	6	7	18
10	8	7	8	21

Market Demand

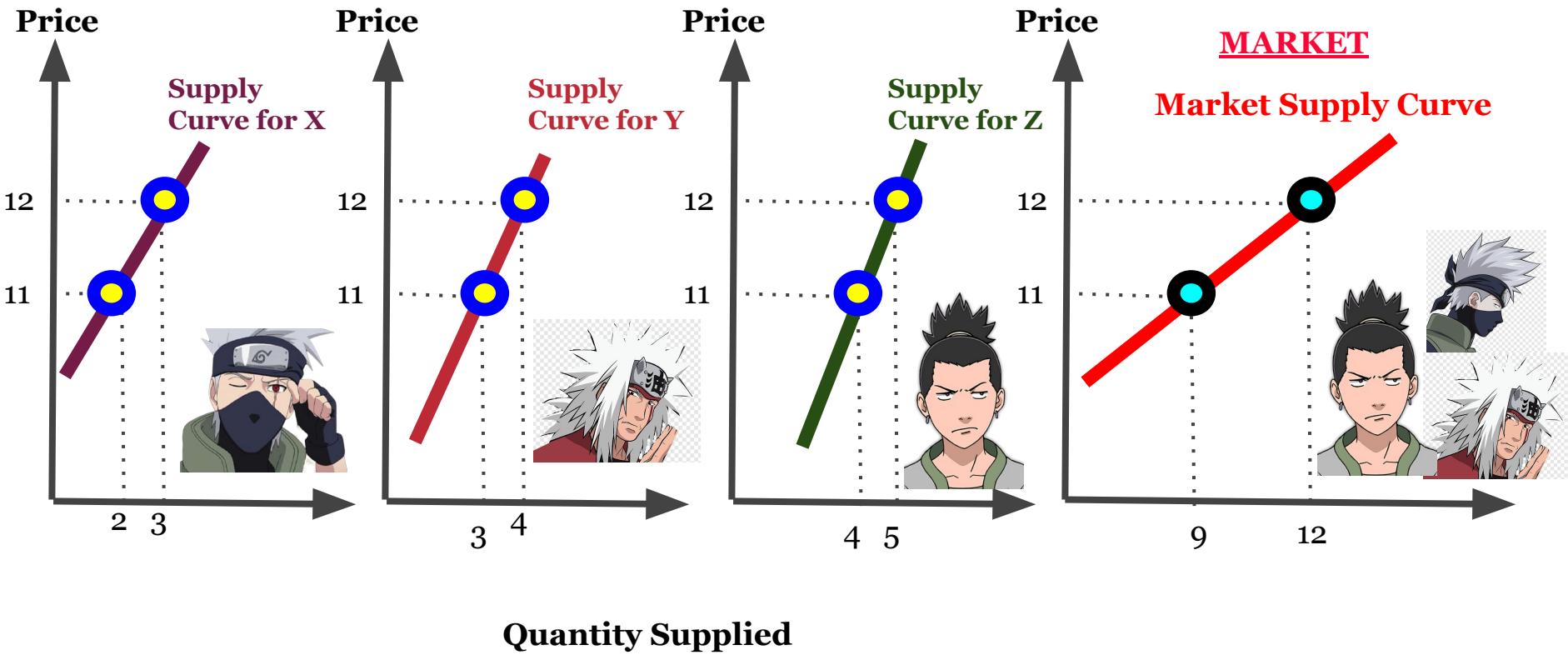


Quantity Demanded

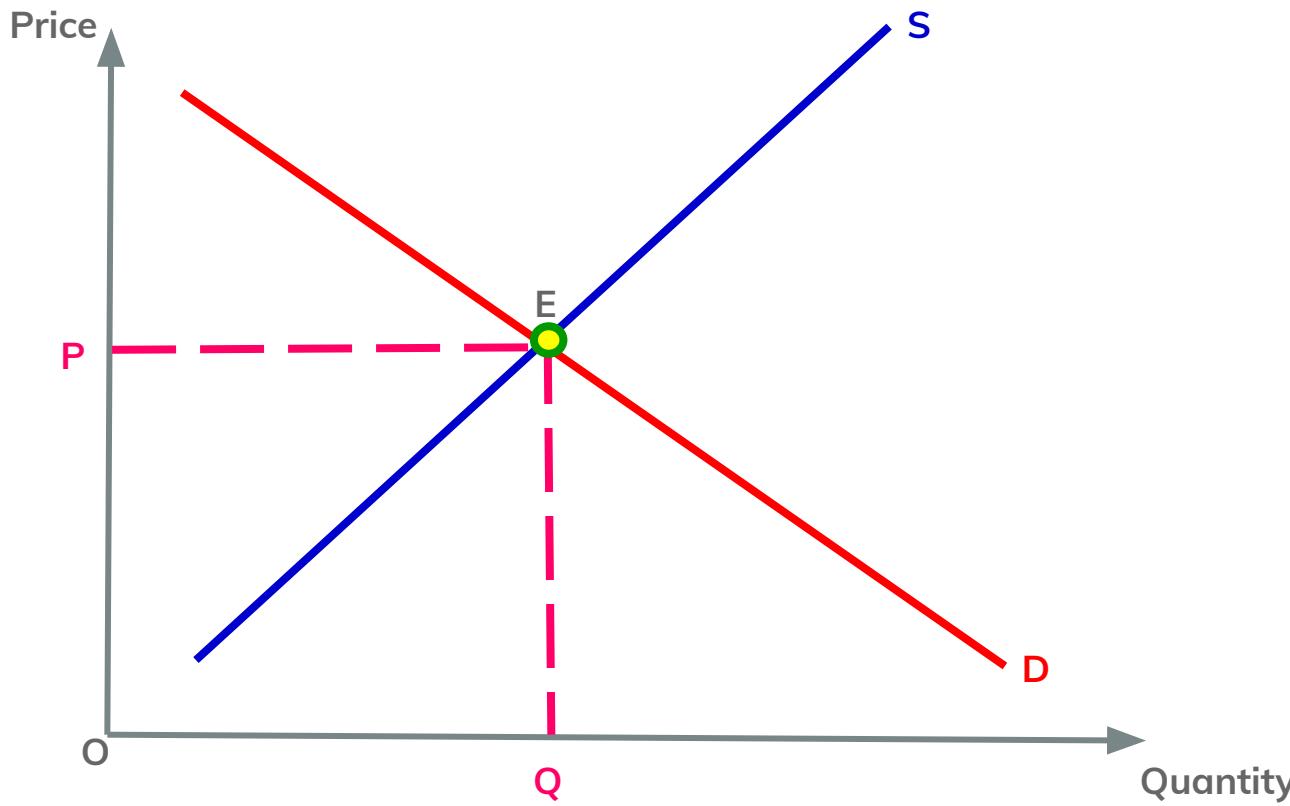
Market Supply

Price	QS by X	QS by Y	QS by Z	Market Supply
15	8	7	8	21
14	9	6	7	18
13	9	5	6	15
12	8	4	5	12
11	7	3	4	9
10	3	2	3	6

Market Supply



Market Equilibrium



Market Equilibrium

- **Equilibrium Price**
 - Quantity demanded is equal to quantity supplied.
 - Price is stable.
 - The market is in balance because everyone who wants to purchase the good can, and every seller who wants to sell the good can.

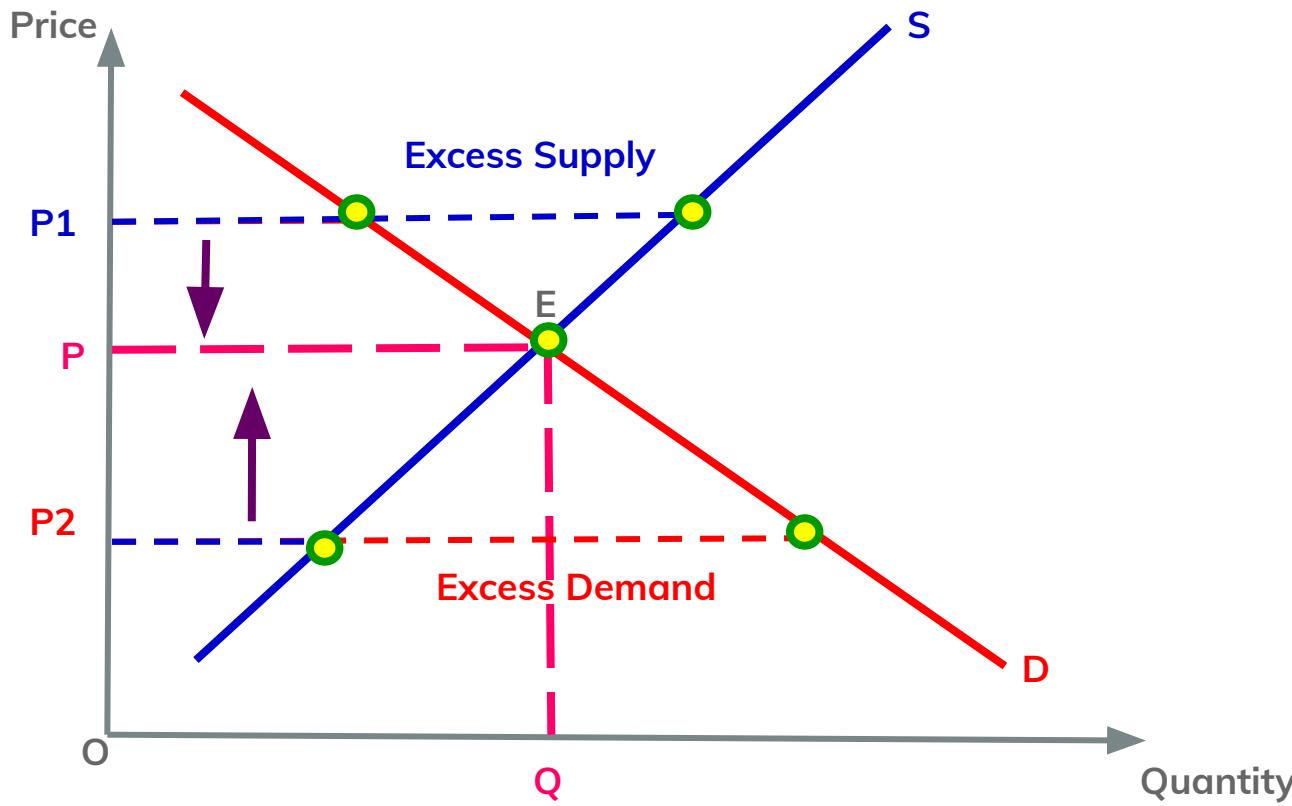


Can Market be in Disequilibrium?

When can Market be in Disequilibrium?

Market Disequilibrium- Consequences?

Market Equilibrium



Market Disequilibrium

- Price Higher than Equilibrium Price
 - Excess supply
 - Surplus
 - Causes price to fall
- Price Lower than Equilibrium Price
 - Excess demand
 - Shortage
 - Causes price to rise

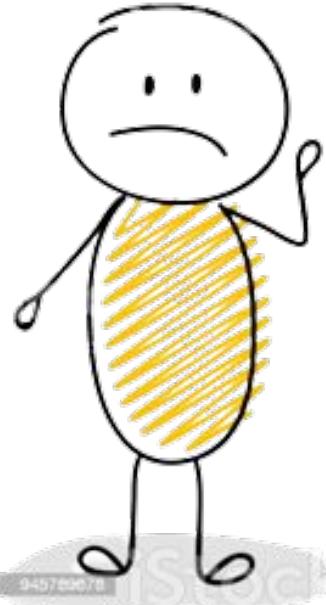
Actual Market Price

- If actual price is above equilibrium price, there will be a surplus that puts downward pressure on the actual price.
- If actual price is below equilibrium price, there will be a shortage that puts downward pressure on the actual price.
- If actual price is equal to equilibrium price, then there will be neither a shortage nor a surplus and price will be stable.



Can Market Equilibrium change?

Why does it Change then?



When Demand Curve Shifts...

To the Right ?????



Increase in
Demand

OR

To the Left ?????



Decrease in
Demand

Why does the Demand Curve Shift to Right or Left?

- When Other Influences Change while Price of the Product is constant.
 - Income
 - Prices of substitutes and complements
 - Advertising expenditures
 - Taste and Preferences
 - Expectations of the buyers
 - Population

What if Demand Curve Shifts?

- **Increase in Demand**

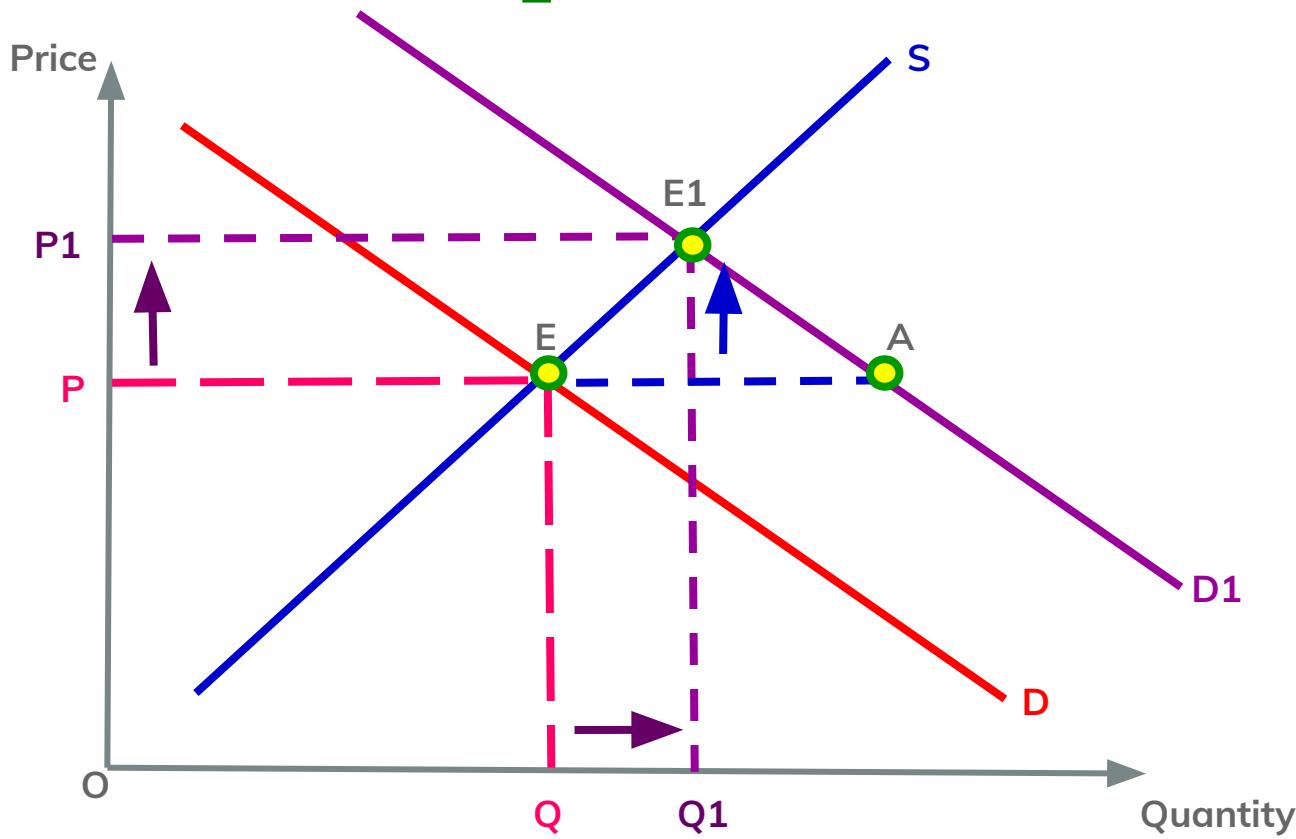
- Represented by a rightward or upward shift in the demand curve
- Result of a change that makes buyers willing to purchase a larger quantity of a good at the current price and/or to pay a higher price for the current quantity
- Will create a shortage and cause the equilibrium price to increase

What if Demand Curve Shifts?

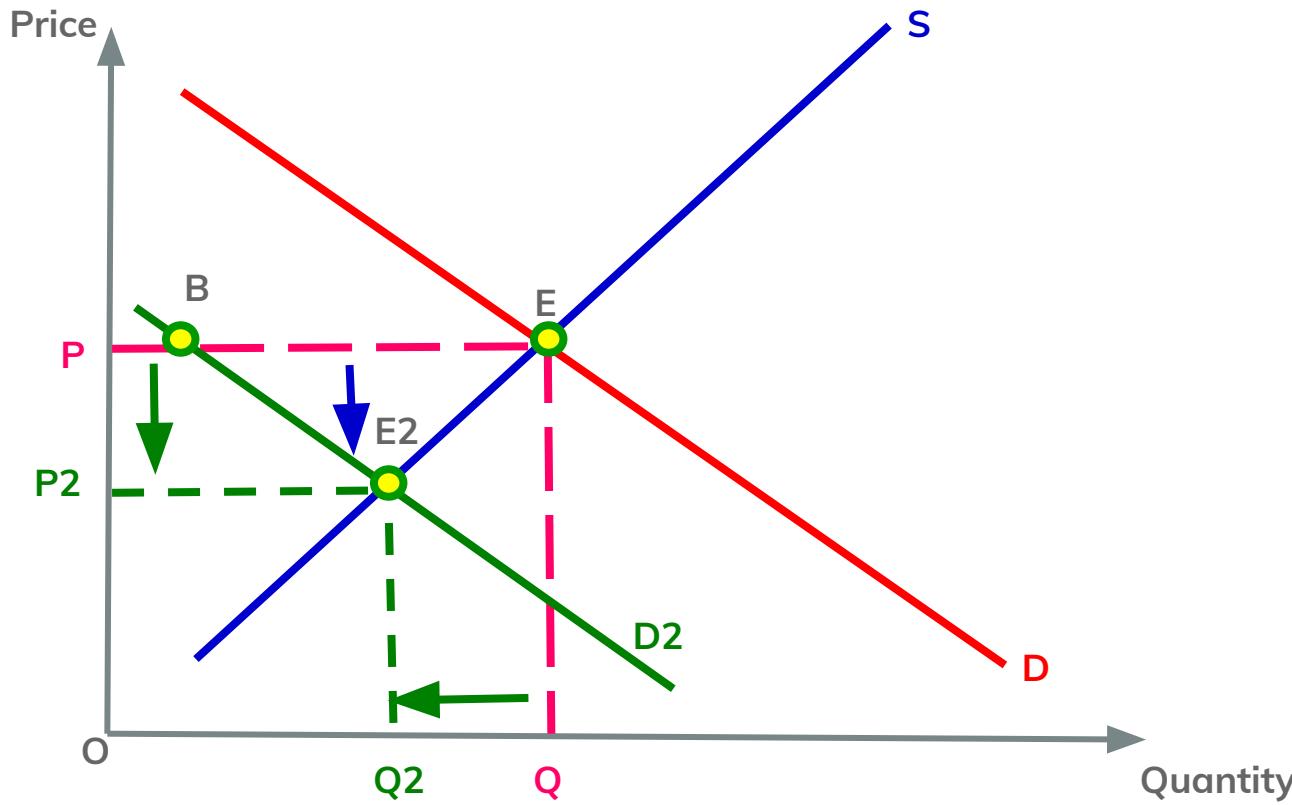
- **Decrease in Demand**

- Represented by a leftward or downward shift in the demand curve
- Result of a change that makes buyers purchase a smaller quantity of a good at the current price and/or continue to buy the current quantity only if the price is reduced
- Will create a surplus and cause the equilibrium price to decrease

Market Equilibrium when D↑



Market Equilibrium when D↓



When Supply Curve Shifts.....

To the Right ?????



Increase in
Supply

OR

To the Left ?????



Decrease in
Supply

Why Supply Curve to Shift to Right or Left?

- When Other Influences Change while Price of the Product is constant.
 - Price of related goods
 - Number of Firms
 - Technological changes
 - Price of factors of production
 - Expected Future Price
 - Government Policy

What if Supply Curve Shifts?

- **Increase in Supply**

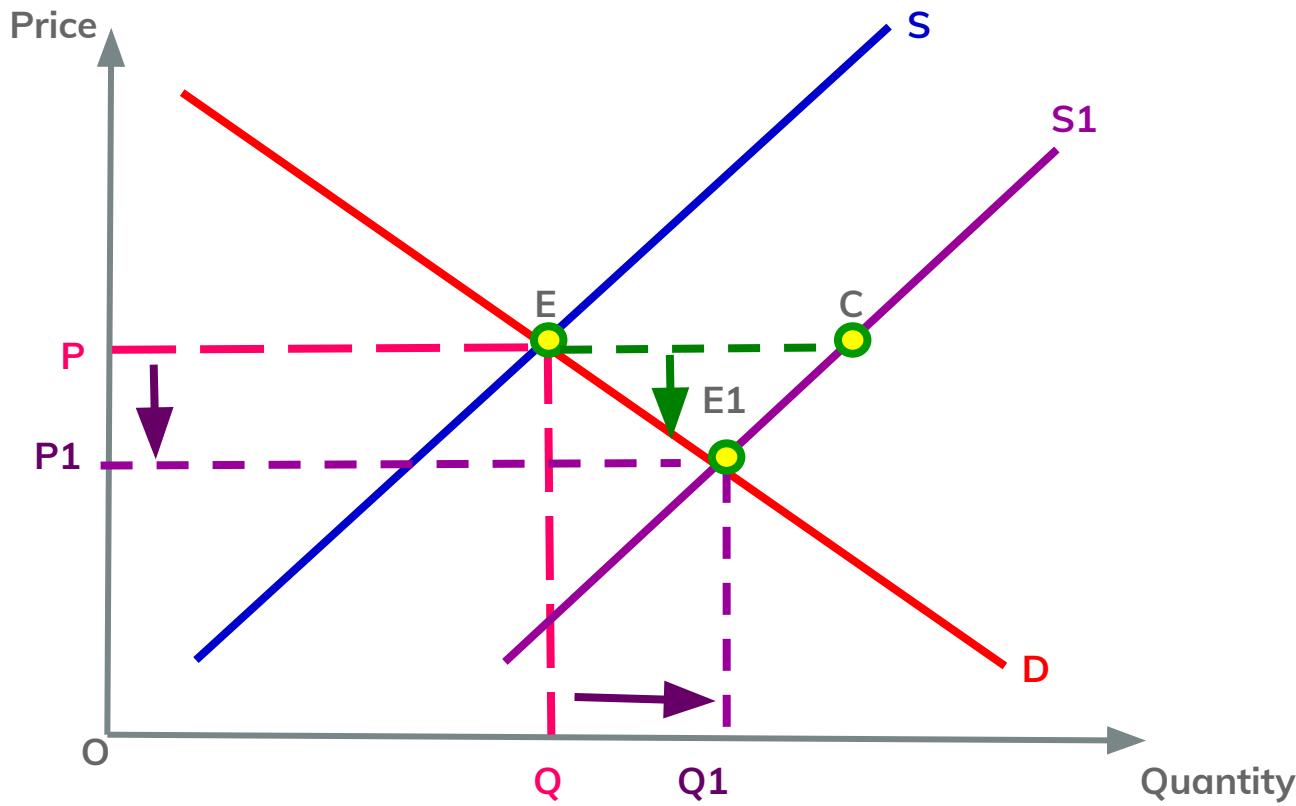
- Represented by a rightward or downward shift in the supply curve
- Result of a change that makes sellers willing to offer a larger quantity of a good at the current price and/or to offer the current quantity at a lower price
- Will create a surplus and cause the equilibrium price to decrease

What if Supply Curve Shifts?

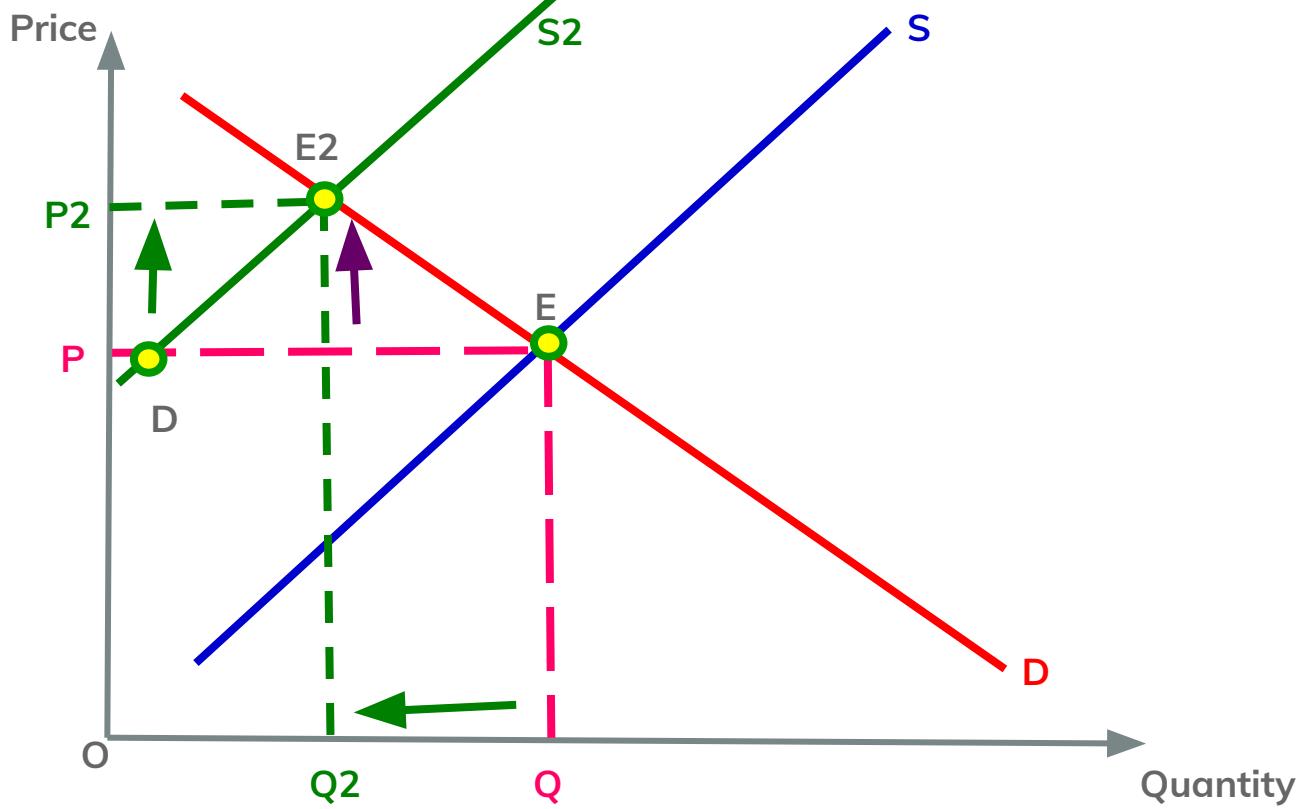
- **Decrease in Supply**

- Represented by a leftward or upward shift in the supply curve
- Result of a change that makes sellers willing to offer a smaller quantity of a good at the current price and/or to offer the current quantity at a higher price
- Will create a shortage and cause the equilibrium price to increase

Market Equilibrium When Supply↑



Market Equilibrium when Supply

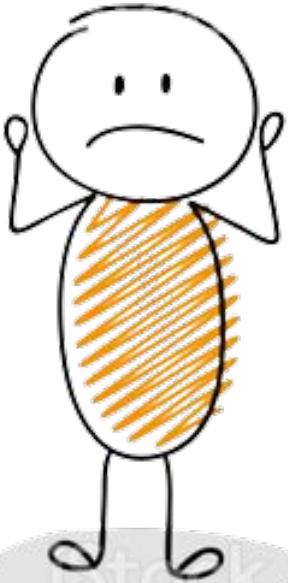


What Happens if Demand & Supply changes simultaneously?





**What if Demand & Supply do not
meet at all What does it mean?**



NEXT

Elasticity of Demand & Supply