S5 ECONOMICS (PRODUCTION CONTINUED…)

THE THEORY OF A FIRM:

Firm; this is a production unit under unified control and management which employs the factors of production to produce goods and services with the purpose of making profits.

An industry; this is a collection or group of firms producing similar or related goods.

Major decisions of a Firm:

The decision is always concerned with the level of output that is in both the short run and long run. It is also concerned with the decision to enter or exit the industry.

The major decisions include;

- The choice of products to produce (what to produce).
- Quantities of output to produce (how much to produce) as determined by the market.
- Choice of techniques to use (how to produce) i.e. labor, or capital intensive.
- The mix of productive inputs to use i.e. (how much of each input or factors of production to employ). This will be determined by the choice of techniques or level of output selected.
- The price to charge for products. Since the output consumers are willing to buy depends on the price of the products or services.
- The selection of industry/nature of the industry.

Goals / objectives of a firm;

An objective of a firm is the reason why a firm exists or is why a firm is established.

The following are some of the objectives the firm may have.

- **To maximize profits**; i.e. to get as much profit as possible. Such a firm restricts output in order to charge high prices.
- **To maximize sales**; such a firm focus on increasing the turn over or to sell goods as much as they can without focusing so much on profit per unit sold.
- **To maximize social welfare**; i.e. this is common with publicly owned firms that aim at social welfare maximization by promoting national interests like creation of employment opportunities, balanced regional development, national security all these cannot be pursued by a profit maximizing firm.
- **To have the biggest market share**, i.e. some firms aim at dominating others in the market through intensive advertising, modest pricing to outcompete rival firms.
- **To limit entry of other firms**; some firms may be interested in preventing entry of new firms into the industry. This can be done through "limit pricing", i.e. setting deliberately low prices in order to drive rival firms out of production.
- **For prestige purposes/ maintaining good image**. Some firms aim at promoting a good public image and prestige of the owners. Such firms are maintained regardless of whether they are making profits or not.

- **To maximise output**. Some firms may be aiming at enjoying economies of scale especially in the long run by expanding the scale of production.

Factors that influence the long-term decision of a firm:

- **The internal organization of the firm:** Good internal organization leads to quicker decision making regarding the firm's operations. On the other hand, poor internal organization delays decision making which negatively affects the long-term plans of the firms.
- **The external environment in which the firm operates:** Favorable external environment such as presence of land for expansion, expanding market, creates an opportunity for the firm to decide to expand in the long run. On the other hand, unfavorable external environment such as limited land for expansion, inadequate market discourages the firm's decision to expand in the long run.
- **The prevailing price levels for the firm's products:** Lucrative prices for the firm's products motivates the firm to decide to expand the scale of production in the long run due to the prospects of earning high profits. On the other hand, declining prices for the firm's products discourages the firm to decide to expand the scale of production in the long run due to the prospects of low profits.
- **The size of the market:** An expanding market motivates the firm to decide to expand the scale of production in the long run due to prospects of maximizing sales and thus earning more profits. On the other hand, declining market discourages the firm's decision to expand the scale of production; this is due to reducing profitability of doing business.
- **Government investment policies:** Favorable government investment policies such as provision of subsidies, tax rebates, tax holiday, improving infrastructure motivate the firm to decide to continue in production and also expand the scale of production in the long run due to the reducing cost of doing business. On the other hand, unfavorable government policies concerning investment such as high corporation taxes, increasing taxes on the firm's products, declining state of infrastructure discourages the firm to decide to remain in business or to expand the scale of production due to the high cost of production.
- **Degree of freedom of entry of new firms into the industry**. High degree of freedom of entry into the industry discourages the firm's decision to decide to expand the scale of production; this is so because the market is shared with other competitors since there is a possibility of remaining with unsold output thus wastage. On the other hand, restricted entry into the industry motivates the firm to decide to remain in business and also to expand the scale of production due to the readily available market.
- **Level of profits:** An increasing profit level for the firm's products motivates such a firm to decide to remain in business and also to expand the scale of production in the long run. On the other hand, declining profit level for the firm's products discourages such a firm to decide to remain in business and also to expand the scale of production.

Production function (input-output relationship); this represents a functional relationship between quantities of various inputs used and the maximum output that may be produced.
It can be a graph, table or an equation.
It is a schedule showing the amount of output that can be produced from specific combinations of factor inputs given the state of technology.

It is expressed mathematically as:

$$Q = f(L, K, N, E)$$

Where Q stands for the output of goods and services per unit of time and L, K, N, E stands for the various inputs used in the production process i.e. land, capital, labor and entrepreneur respectively.

The production function is affected by the following factors which would lead to shifts in the production function either inwards or outwards.

- State of technology
- The quantity of factor inputs used.
- The size of the firm.
- The nature of the firm organization.
- The relative prices of the factor inputs.

The production periods of a firm:

- **Short run**: This is a time period which is so short that a firm cannot increase its production capacity by varying its fixed factors e.g. building. They can only increase the output by varying the quantities of variable factors e.g. labor, raw materials etc.

- **Long run**: This is a time period which is long enough for the firm to increase its production capacity by varying all factors of production i.e. all fixed and variable factors. In this production period all factors of production are variable except the level of technology which remains constant.

- **The very long run:** This is a time period long enough for the firm to change its level of technology i.e. a firm will be in position to conduct research on technology improvement which would lead to better techniques of production and better-quality products.

The product concept; this refers to a good or service created as a result of a process and serves a need.

Concepts used in connection to the production function:

1. The total product (Tp); this refers to the total output obtained from employing a given number of units of the variable factor of production

2. Average product (Ap): This refers to the output per unit of the variable factor /input employed. It is obtained by dividing the total output by the units of the variable factors employed.

$$\therefore AP = \frac{TP}{Units\ of\ the\ variable\ factors\ employed}$$

$$OR = \frac{TP}{\text{Number of workers.}}$$

It shows on average how much output each worker produces.

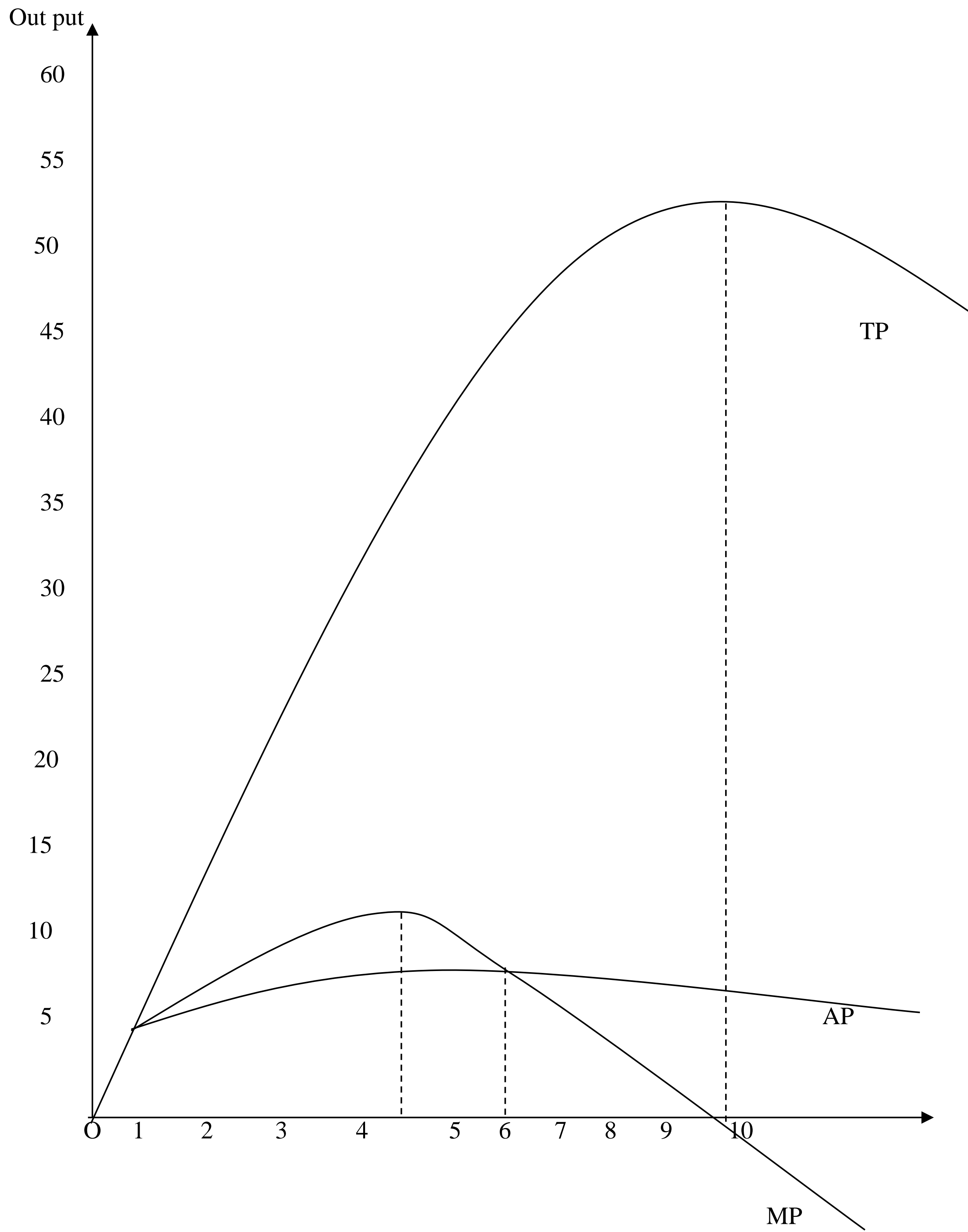
3. Marginal product (Mp); this refers to the additional product or output resulting from employing an extra unit of a variable factor. E.g. Labor.

$$MP = \frac{\Delta\ TP}{\Delta\ L\ \text{(Units of the variable factor)}}$$

A table illustrating total product, Average product and Marginal product

Units of fixed factor	Units of variable factor	Total product TP (tones)	Average product (AP)	Marginal Product (MP)
100	0	0	___	____
100	1	5	5	5
100	2	12	6	7
100	3	21	7	9
100	4	32	8	11
100	5	40	8	8
100	6	45	7.5	5
100	7	49	7	4
100	8	52	6.5	3
100	9	52	5.7	0
100	10	48	4.8	-4

An illustration of relationship between TP, AP and MP.



Observations:

- When total product is at maximum, MP is equal to zero, when TP starts declining the MP becomes negative.

- when AP is increasing the MP is greater than the AP and when AP is decreasing the MP is less than AP and AP is equal to the MP when AP is at its maximum.

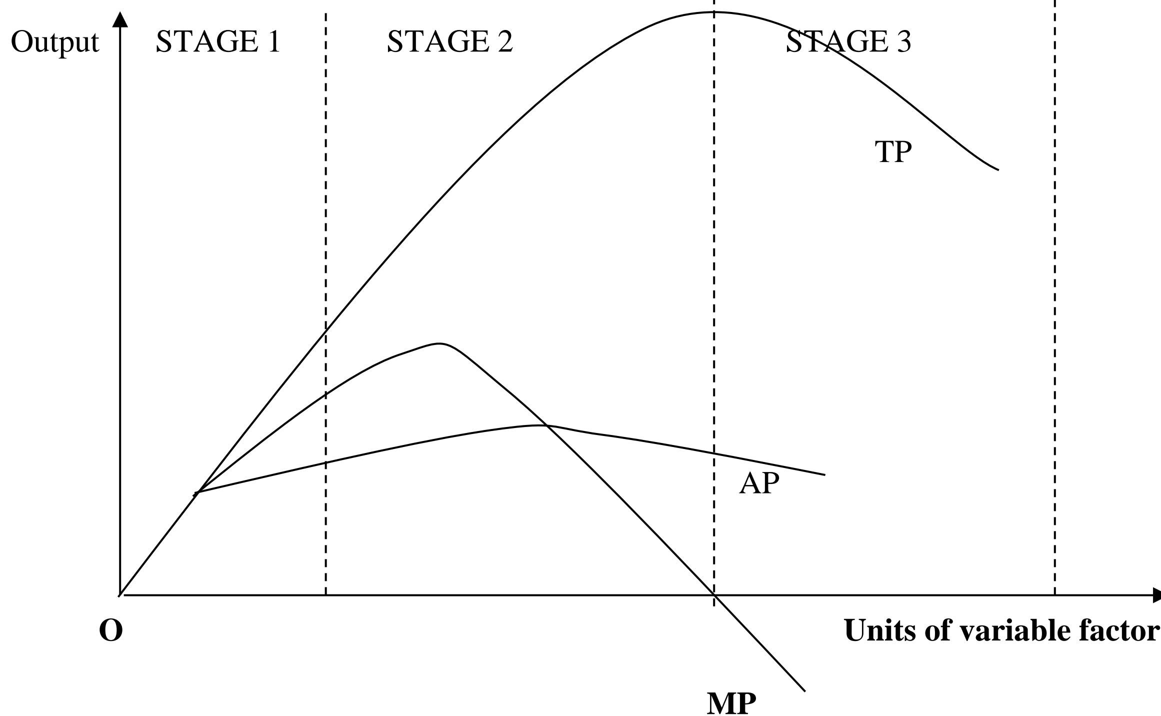
The law of diminishing returns /the law of variable proportions:

The law of diminishing returns states that as more and more units of a variable factor are applied to a given quantity of a fixed factor, the marginal product/output first rises, reaches a maximum point and then diminishes/declines

Assumption of law of diminishing returns

- Existence of a fixed factor e.g. land.
- Existence of a variable factor e.g. labor
- The technology is constant
- All units of the variable factor are homogenous/ equally efficient/the variable factor is easily divisible into small units.
- Constant factor prices (e.g. constant wages, constant rent etc.)
- Short run period.

Note: As the variable factor is increased, the following stages are observed as illustrated below.



The explanation of the stages illustrated in the above graph is as follows:

Stage I. The stage of increasing returns; At this stage, the TP, AP and MP are all increasing i.e. the application of an additional unit of a variable factor leads to more than proportionate increase in output. This is an indication of increasing efficiency of the factor combination (the fixed factor is in excess of the variable factor).

Stage 2. (**Stage of diminishing returns.);** At this stage TP is increasing at a decreasing rate, MP is falling, but is positive, the application of extra units of a variable factor leads to a less than proportionate increase in output (AP reaches maximum and starts declining). TP continues increasing and reaches a maximum at point where MP = O.

Stage 3. (Stage of negative returns.); At this stage TP starts declining and MP becomes negative. This is because the fixed factor is over utilized while the variable factor is underutilized, so profitable production cannot take place at this stage. The point at which AP is at maximum is the Optimum level of production.

THE LAW OF RETURNS TO SCALE; this law states that, 'when there are proportionate changes in the amount of input, the amount of output also changes.

Returns to scale: This refers to rate at which output changes when factor inputs are changed.

There are three categories of returns to scale namely;

Increasing returns to scale; this is one where output increases but by a greater margin compared to the increase in factor input. E.g. if workers are increased by 10% and the producer's output increases by 50%.

Constant return to scale; this is one where the change in the factor combination brings about an equal change in output produced. E.g. if workers are increased by 10% and the output also increases by 10%.

Decreasing returns to scale; This is one where output increases but by a lower margin compared to the increase in the factor inputs. e.g. if labor is increased by 50% and the output increases by only 10%.

LOCATION AND LOCALISATION OF FIRMS:

Location of a firm; this refers to a place or a site where a firm is situated/ established/set up.

FACTORS LEADING TO LOCATION OF A FIRM(S):

- **Presence of Market.** Most firms which produce products that gain weight after production and those which are perishable are located close to market to minimize costs of transportation

- **Presence of raw materials.** Firms that use bulky raw materials which are costly to transport are located near the source of raw materials e.g. Tororo and Hima cement factory.

- **Closeness to the source of power.** Entrepreneurs tend to locate their industries near the source of reliable power supply.

- **Presence of means of transport.** Locating an industry near a source of transport is important because it makes it easy to transport raw materials and finished goods.

- **Presence of cheap labor with relevant skills**. This reduces the labor costs and therefore most industries locate near the cheap labor supply.

- **Presence of clean water supply.** This is necessary for heavy industries, which require a lot of water for industrial processes and water for damping wastes.

- **Presence of a stable political atmosphere.** A stable political climate attracts many entrepreneurs hence location of firms.

- **Presence of auxiliary services.** Firms tend to be attracted near or in areas where services like banking, insurance, warehousing, advertising media are well developed, these facilitate the production process.
- **Industrial inertia:** New firms tend to be attracted to areas where there is only high concentration of other firms, this because of the established infrastructure, existence of a pool of skilled labor and presence of other significant location factors.
- **Favorable government policy on location of firms.** Favorable government policy in term of incentives such as provision of subsidies, developed infrastructure in a given area attracts firms to be located there due to low production costs.

Reasons for influencing the location of firms by the government:

- To encourage the exploitation of some resources.
- To create more employment opportunities
- To facilitate fair distribution of incomes
- To minimize the adverse effects of localization
- To ensure balanced regional development

- To control monopoly tendencies
- To avoid unnecessary duplication and wastes
- To fulfill political obligations.
- For strategic reasons.

Terms related to location of firms:

- **Foot loose industry;** this is an Industry that can be located anywhere regardless of the factors that affect its location such as presence of raw materials, presence of market etc.

- **Rooted Industry:** this is an industry located in a particular area because of a given pool or location factors. E.g. located near the source of raw materials or near the source of market e.g. cement firms are established near the source of raw material which is limestone. Whereas furniture workshops are established in urban areas which are the source of the market for the furniture made.

- **Industrial Inertia:** this is the tendency of an industry to locate or continue surviving in an area where other industries exist even when factors that led to location of industries there no longer apply.

Localisation of an industry: This is the **concentration** of firms producing related products in order to reap or enjoy external economies of scale/advantages of the location.

Advantages of localisation:

- **Facilitates infrastructural development in the area**, this is so because there are many firms in one area which compels the government to develop infrastructures such as roads, railway lines, communication network etc in the area in order to ease the production process by the investors.
- **Leads to creation of more employment opportunities in the area**. This is because of the large number of firms in such an area which creates more jobs. This enables the employed people to earn incomes thus improving their standards of living.
- **Leads to cooperation of the industries in solving common problems**. This is done by pooling resources to solve problems like insecurity in the area.
- **Leads to development of a pool of skilled labor**. People in such an area are willing and interested in learning the skills needed in the localized industry. Over time they become specialised and employable in the industry.
- **Leads to development of organised markets/expansion of markets for products**. This is so because firms are in one area which attracts potential buyers for their products making marketing easy.
- **Leads to a wide variety of goods produced in the area**. This is so because there many firms producing different products hence widening the consumer's choice.
- **Encourages forward and backward linkages**. Some firms are attracted in the area to either supply raw materials or to provide market to the already existing firms.

- **Promotes development of auxiliary services such as insurance, banking, warehousing in the area.** These attracted to facilitate the production and marketing services.
- **Leads to increased utilisation of the would-be idle resources**. This is because of the many firms in the area that make use of the available resources.
- **Promotes specialisation and its advantages**. There is specialization by commodity and by process in the localized industries. This leads to production of a variety of products, increased output, better quality products etc.
- **Leads to low prices of final products**. This is due to the reduced costs in terms of acquisition of raw materials, marketing, by the different firms.
- **Leads to increased government revenue through taxation**. This is through the taxes imposed on the products produced by the different firms, the incomes of the employees and the profits made by the localized firms.
- **Leads to increased quality of output due to competition.** This is because of the many firms in the area which strive to produce to produce better quality goods so as to secure market.
- **Leads to increased output**. This because of the many firms in the localised area which lead to production of high volume of goods thus accelerating the economic growth rate.

Demerits of localisation:

- **Leads to regional imbalance in development**. Localisation of industries concentrates production in one area or a particular part of the country, this result into some areas developing more than others.
- **Results into rural urban migration and its negative consequences.** The localized areas attract many people from other areas with hope of acquiring employment opportunities, unfortunately majority of such people fail to secure the jobs, this results into congestion in towns, urban unemployment.
- **Overstrains infrastructures in the area.** Social facilities like health centers, housing, communication, power and water supply are overstrained due to the rising population in that localised area. This increases government expenditure as she strives to increase provision of such services.
- **Leads to the problem of income inequality.** People who are employed in the localised industries earn more incomes than their counterparts in other areas.
- **Leads to quick depletion of resources in an area.** There is over exploitation of the resources in the localised areas by the many firms this leads to their quick depletion.
- **Leads to increased cost of land /High rent rates.** This is due to the stiff competition for land by the many firms, this leads high rent rates thus high cost of production.
- **Leads to environmental degradation/pollution in the area.** Localization of industries causes excessive pollution of air and water due to industrial wastes and emissions from the manufacturing plants. This puts people's lives and the environment in danger.
- **The economy becomes dependent on a particular area which is risky.** This is because concentrates in a particular area and in case of a problem like war all other areas suffer.
- **Leads to displacement of people making many landless.** Many industrial investors are forced to encroach on land meant for settlement purposes in order to expand their industrial activities.

- **Leads to increased cost of labor.** This is due to the stiff competition for the skilled labor force by the many firms, this leads to high cost of production.
- **Leads to rising cost of living in the area.** This is because of the increased demand for goods and services by the many people which leads to their increased prices.

DELOCALISATION: This is a deliberate act by government of distributing industries evenly throughout the country to avoid concentration of industrial establishments in one area.

Advantages of delocalization:

- Creation of even employment opportunities.
- It reduces the problem of rural urban migration and it associated evils.
- It leads to even development of all regions of a country.
- Facilitates the development of infrastructure more evenly throughout the country.

The survival of small-scale firms alongside large scale firms:

Despite the advantages enjoyed by large-scale firms, some firms continue to operate on small scale basis reasons being:

- **They are beginner/new firm**. Some of the small-scale firms are still at their stage of infancy with limited experience; hence prefer to remain small despite the advantages enjoyed by large-scale firms.
- **Fear of increased taxes**. Small-scale firms fear taxation associated with large-scale production; hence continue to remain small not to attract the attention of government despite the advantages enjoyed by large-scale firms.
- **Limited capital for expansion/ they are cheap to start.** They increased have limited capital for expansion since they cannot buy enough raw materials to increase output and thus continue to remain small despite the advantages enjoyed by large-scale firms.
- **They are experimental/ pilot projects**; the aim is not profit maximisation but provide research findings that benefit other firms.

- **Limited managerial skills required**; this limits the level of innovation and creativity among the managers making it hard for the firm to expand.
- **Limited supply of raw materials;** this limits large scale production since the raw materials are scarce and expensive to acquire.
- **Fear of diseconomies of scale/fear of high risks associated with large scale firms**; the entrepreneur maintains the scale firms which are easy to manage.
- **Production according to special order;** people supply a few goods at a time according to order.
- **Market requiring personal touch/personal service;** this is because the person has to attend to the customers individually and therefore needs a few customers at a time to ensure effective delivery of a service.
- **They are flexible/ Allows for flexibility**; many people like them because they can easily change from one line of business to another without loss.
- **Poor infrastructure,** this increases the cost of production which limit profit levels and hampers expansion

- **Poor techniques of production**; this increases the cost of production which limit profit levels and hampers expansion
- **The small size of the market/ Limited market size;** this limits expansion of the producer fear to incur losses by remaining with unsold output.
- **Limited labor skills;** this limits expansion of the firms due to low levels of efficiency and productivity.
- **Limited entrepreneurial ability;** it limits expansion because of low levels innovations and creativity.
- **Fear to lose independence;** this is because as the firm expands the entrepreneur is compelled to surrender the powers to other managers.
- **Poor land tenure.** The poor distribution and unfair ownership of land limit the expansion of scale of production; this is because of the difficulty in accessing land.
- **Objective/ choice of the entrepreneur.** Some entrepreneur keeps their firm small because they don't make any effort to expand the firm independence as the firm expands.

THE GROWTH OF A FIRM; The growth of a firm means the expansion of the production capacity of the firm.

Most firms begin as small-scale firms and others as infant firms and the infant firms expand and mature with time.

NB: An Infant Firm is a newly established firm or it's a firm that has **just** been established.

.

A firm can grow in two ways.

1. **Natural / Internal Growth.**

   This is when the firm expands in size when the internal factors become favorable e.g. when the capital of the firm increases, when the sales increase, when profits increase.

2. **Amalgamation/ Combination/ Merging**

   This is when two or more firms come together to form a bigger firm and thereby enjoy better or greater economies of scale.

Firms may combine in different forms or ways and the common ones include.

i. **Complete Amalgamation/ Consolidation**; this involves dissolution of all companies intending to amalgamate and then there is creation of a new company to take over their businesses.
ii. **Absorption**; this form of combination takes place when one company takes over the business of another company or companies. Here one company retains its entity.
iii. **Holding Company**; under this arrangement, the various companies entering into combination retain their entities while one of them acquires controlling shares i.e. 51%

or more. The companies controlling the other companies would then be called the holding company while the others would be called subsidiary companies.

iv. **Mergers**; firms or industries are said to merge if and when they pool their assets and operate jointly as one production unit. This is where two or more firms come together to form one big firm.

Factors that determine the growth of a firm

Some firms are bigger than others or some firms grow faster than others because of the factors affecting the growth of the firm and such factors include the following:

- **The size of the market**; A firm with a big size of the market grows at a faster rate because of high level of earnings than the firm with a small size of the market because of level of earnings.
- **Availability of finance/funds;** A firm grows faster when it has adequate finances to purchase inputs whereas inadequate finances limit the growth of the firm cannot purchase enough funds to purchase inputs.
- **Level of technology used**; a firm that use modern technology is more efficient and expands easily while a firm that uses poor technology is inefficient and fails to expand easily.
- **The land tenure system;** a good land tenure system enables the firm to grow faster because it easily accesses land for expansion while poor land tenure system limits the growth of a firm because cannot easily access land.
- **Supply of raw materials**. Constant supply of raw materials enhances the growth of a firm because it easily acquires raw materials at a low cost, while inadequate supply of raw materials limit the growth of the firm because the raw materials are scarce and acquired at a high cost.
- **Level of taxation and subsidisation**. High taxes limit the growth of the firm because they increase the cost of production which reduces profits of the firm. Whereas subsidization of the firms enhances their growth because they reduce the cost of production which increases their profits.
- **Availability of skilled labor**. Presence of skilled labor in the firm increases the chances of growth because the firm easily acquires the skilled labor at a low cost, while limited supply of skilled labor limits expansion of the firm because labor is acquired at a high cost.
- **Level of entrepreneurial ability**. High entrepreneurial ability leads to the growth of the firm of the increased inventions and innovations by the entrepreneur. Whereas limited entrepreneurial ability limits the growth of the firm because of low levels of inventions and innovations.
- **The state of infrastructure**. A well-developed infrastructure such as good roads lead to the growth of the firm because it lowers the transportation costs, whereas poor state of infrastructure limits expansion of the firm because increases the cost of production.

- **Political atmosphere**. Firms grow faster when there is political stability because they are not scared of losing their lives and property, whereas political instability limits the growth of firms because it scares entrepreneurs since they fear to lose their lives and property.

MERGING OF FIRMS; this refers to the coming together of two or more firms to enjoy economies of scale.

Types of merging:

1. **Horizontal merging**; this is the union or combination of two or more firms in the same industry/producing similar or related goods at the same stage/ level of production. E.g. Airtel joining with Warid telecom
2. **Vertical merging**; this is where two or more firms at different stages of production but producing related or similar goods come together to form one big firm. E.g. when a tea growing firm combines with a tea processing firm. When the merging is towards the source of raw materials, it is called BACKWARD VERTICAL MERGER. But when the combination is towards the market outlet then it is known as FORWARD VERTICAL MERGER.
3. **Conglomerate merging**; this is when two or more firms dealing/ producing completely unrelated commodities come together for the purpose of achieving diversification of activities. e.g. a shoe making firm joining with a bread making firm to form one big firm.
4. **Lateral merging**; this is the bringing together assets of two or more firms producing related commodities but not competing and can be conveniently market together e.g. shoes and shoe polish making firms.

Reasons why firms merge:

- To reduce the average cost of production/ to increase profits
- To encourage efficiency/Improve the quality of output
- To attain monopoly power/ To control the market
- To effectively exploit the available resources
- To minimize unnecessary duplication and wastes
- To enjoy economies of scale e.g. increase output.

Advantages of merging:

- It reduces the average cost of production e.g. reduced cost of advertising.
- It leads to increased resource utilisation
- It reduces competition for the market/ Widens the market/increases sales
- It reduces duplication of products.
- It leads to increased accessibility to skilled labor.
- It increases the firms' accessibility to capital /loans
- It leads to improves management

- It leads to access to technology
- It enables the firm to spread risks/leads to sharing of risks.
- It improves the efficiency of the firm/ it enables the firm to make more profits
- It leads to increased output.
- Reduces stiff competition for the raw materials.

Disadvantages of merging of firms:

- It leads to monopoly power since after merging a firm remains alone in the market and such a firm charge high prices.
- It leads to unemployment because when firms merge, some workers are laid off.
- It leads to management problems because the firm is now big and complex which makes the coordination of managers difficult.
- It leads to loss of independence/identity of small firms because they surrender their power to the bigger firms in the merger.
- Lead to over production and yet the market is still small
- Leads to over utilisation/ over exploitation of resources because the bigger firms use efficient technology which uses the resources sparingly.

LIMITATIONS TO MERGING OF FIRMS:

- Fear of losing jobs because some mergers displace some workers.
- Fear to lose contacts with customers
- Fear of managerial problems which are associated with big firms.
- Government anti-monopoly legislation
- Fear of losing independence/fear of losing autonomy
- Fear of paying high taxes
- Fear to share loses