Economics
for Senior High Schools

Year 2

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MINISTRY OF EDUCATION
GHANA ECONOMICS TEACHERS'
ASSOCIATION

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Ghana Education
Service (GES)

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FOREWORD

Ghana's new Senior High School Curriculum aims to ensure that all learners achieve their potential by equipping them with 21st Century skills, knowledge, character qualities and shared Ghanaian values. This will prepare learners to live a responsible adult life, progress to further studies and enter the world of work. This is the first time that Ghana has developed a Senior High School Curriculum which focuses on national values, attempting to educate a generation of Ghanaian youth who are proud of our country and can contribute effectively to its development.

The Ministry of Education is proud to have overseen the production of these Learner Materials which can be used in class and for self-study and revision. These materials have been developed through a partnership between the Ghana Education Service, teacher unions (Ghana National Association of Teachers- GNAT, National Association of Graduate Teacher -NAGRAT and the Coalition of Concerned Teachers- CCT) and National Subject Associations. These materials are informative and of high quality because they have been written by teachers for teachers with the expert backing of each subject association.

I believe that, if used appropriately, these materials will go a long way to transforming our Senior High Schools and developing Ghana so that we become a proud, prosperous and values-driven nation where our people are our greatest national asset.

Haruna Iddrisu MP

Minister for Education

TOOLS IN ECONOMIC ANALYSIS

CONSUMERS' RATIONAL DECISION MAKING

INTRODUCTION TO THE SUBJECT OF ECONOMICS

INTRODUCTION

Hello learner! Welcome to Section 1 of Year 2 Economics. Economics may seem complex, but it becomes easier to understand when using the right tools. One important tool is **economese**, the specialised language of Economics. Terms like "inflation," "opportunity cost," and "demand" may seem technical, but they help economists to communicate complicated ideas between each other without getting too confused with the many different words that could otherwise be used to describe these concepts.

To make these concepts even clearer you can also use **infographics**. Infographics transform data into visual stories, showing trends, comparisons, or relationships at a glance. Economists also use equations from **algebra** to calculate important economic variables such as **utility**, **revenue, and cost.** For businesses, calculating revenue helps them understand how much they earn while understanding cost shows how much expenditure they have made during production. In this section, you will learn how to combine economese, infographics, and algebra to enable you to interpret and analyse economic data.

KEY IDEAS

- Algebra involves the use of variables and expressions to represent economic ideas and relationships. It is a branch of mathematics that focuses on solving equations which are used to understand the relationships between different economic variables.

- Economists use a specialised language called "economese" that is specific to economic theories, models, and practices. It includes terms like "inflation," "opportunity cost," "gross domestic product (GDP),".

- Infographics are visual representations of information, data, or knowledge intended to present complex information quickly and clearly.

- The combined impact of economese, infographics, and algebra helps the economist to interpret and analyse economic data accurately.

TOOLS OF ECONOMIC ANALYSIS – WORDS (ECONOMESE)

In a bakery, there are ingredients and equipment such as flour, oven, margarine, the building, all used to produce bread. These physical things which help the baker to produce the bread are called **capital** in Economics. In other fields, **capital** can mean the largest city of a county or the money for business. These show that every field can use the same word but with a different meaning.

In Economics, these special words explain economic problems to help in the understanding of common economic issues. These words are tools that help you understand, explain, and analyse what is happening in the economy around you and help you make better decisions about the future. They make economic analysis simple by breaking down difficult ideas and issues into easy-to-understand terms.

Some of the words come in their abbreviated forms. For instance, Gross Domestic Product (GDP), Value Added Tax (VAT), Production Possibility Frontier (PPF), United States dollars ($ or USD), and Quantity (Q). These can be difficult to understand for people who are not familiar with them.

People in Ghana often complain about economic issues. The **inflation rate** is rising, causing the **prices** of common **goods** to soar. The **depreciation** of the cedi makes the situation worse as people cannot afford to shop. The low value of the cedi makes **imports** more expensive for businesses. **Wage stagnation** is leading to dissatisfaction among workers, prompting strikes. The high **unemployment rate** is leaving many young people without **job opportunities**. These problems use 'economese' to help Ghanaians complain!

Examples of Economese Used in Economic Analysis

1. **Factors of production:** These are the resources we use to make goods and services. Imagine you want to make something like a pizza or even start a business. To do this, you need land/space, machines and ingredients, the human effort to produce and a brain behind the business. In Economics, we call them "factors of production."

2. **Gross Domestic Product (GDP):** This is the total monetary value of all finished goods and services produced within a country's borders in a specific time period, usually annually or quarterly.

3. **Inflation:** It is the rate at which the general level of prices for goods and services is rising resulting in a decrease in the purchasing power of a currency over time.

4. **Imports and Exports: Imports** are goods and services that a country buys from other countries, while **exports** are goods and services that a country sells to other countries. Ghana, for example, exports cocoa but imports cars.

5. **Budget:** A budget is a plan that shows how much money is expected to come in (income) and how much will be spent (expenses) over a period. The government

of Ghana makes a national budget each year to decide how to spend its money on things like education, healthcare and roads.

6. **Tax:** A tax is usually money that individuals and businesses must pay to the government. Taxes are used to provide public services like schools, hospitals and roads.

Activity 1.1 Word Hunt

1. Search and list three more economese words that are associated with each of the following economic concepts: Demand, Supply, Market, and Utility. Did you notice that these are also economese?

2. Write a short definition for each economese word you have identified.

3. Share your findings with your friends in class.

   Note: Respect your friends and tolerate their views.

Activity 1.2 Matching Game

Copy and complete the table by matching the correct economese word with the correct definition: Price, Supply, Inflation, Diminishing Marginal Utility, Scarcity, Demand Curve.

Economic word	Definition
	A graphical representation showing the relationship between price and quantity demanded.
	The amount of money that is required to purchase a good or service.
	A situation where limited resources are not enough to satisfy unlimited wants.
	The amount of a product that producers are willing to sell at different prices.
	The principle is that as a person consumes more units of a good, the additional satisfaction from each new unit decreases.
	The rate at which the general level of prices for goods and services is rising.

Show your work to your teacher and also share it with your friends.

Activity 1.3 Real-Life Application of Demand and Supply

Create a short-written presentation (alternatively, MS PowerPoint can be used) on the following issues:

1. How the demand for smartphones increases as more students desire to study online.

2. How the supply of maize is affected by weather conditions.

3. Discuss your findings with your friends in class. Remember to be polite, respectful, and tolerant.

TOOLS OF ECONOMIC ANALYSIS - INFOGRAPHICS

In addition to words, economists use **infographics** to simplify economic data and make it more understandable. For instance, a graph showing the trend of food prices in Accra over the last two years can help you see how inflation impacts our daily expenses. These visuals make it easier for us to interpret economic data. See a typical example in *Figures 1.1-1.5*.
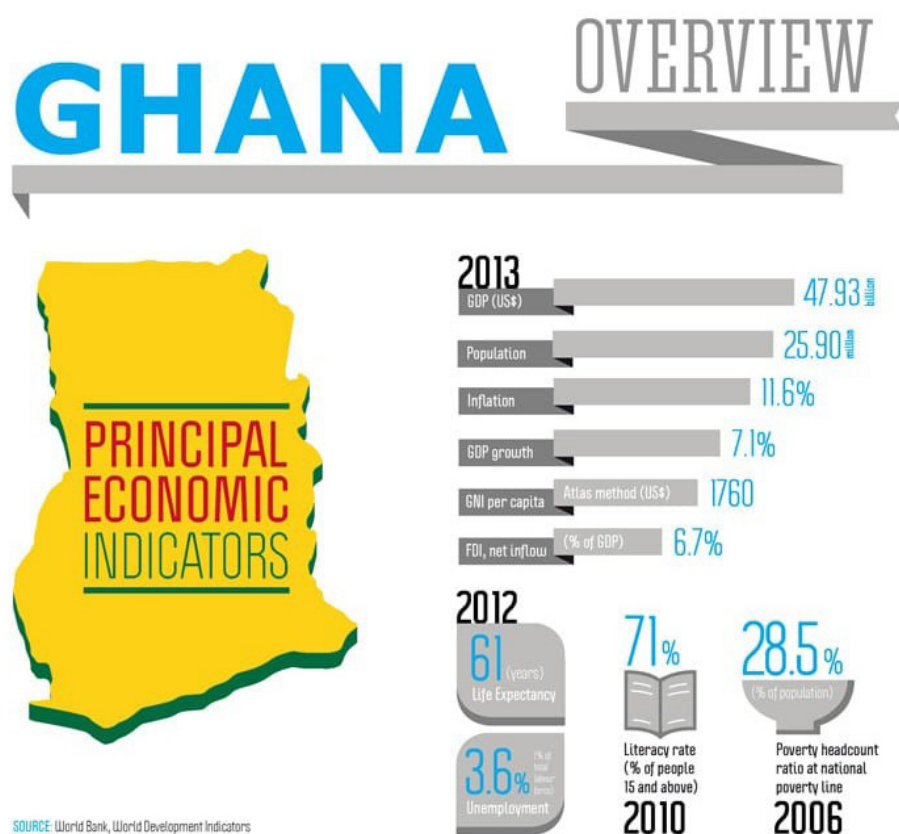
Figure 1.1: Infographic on Ghana's GDP in 2013
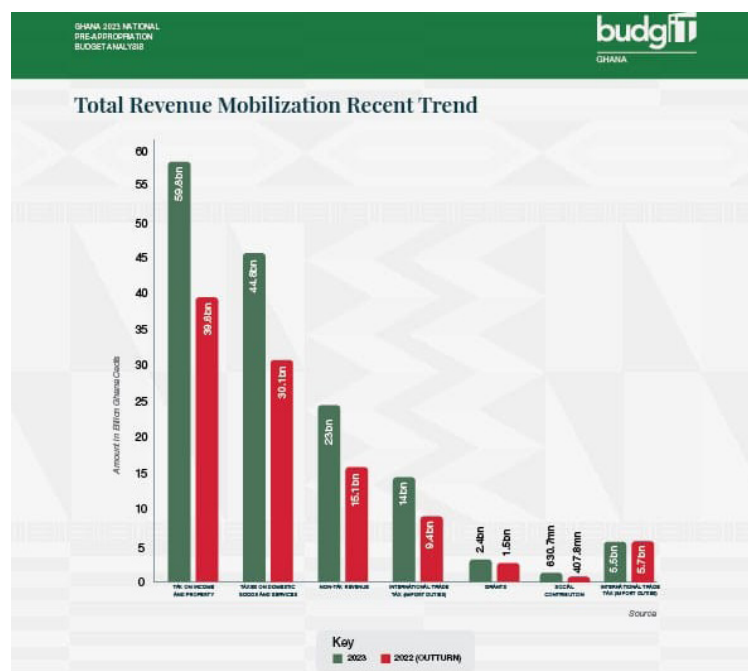
Figure 1.2: Infographic on Revenue Mobilisation trends

Price of commodity	Quantity of 'Y' demanded Kgs.			Market demand
Y' Rs	Consumer L	Consumer M	Consumer N	L+M+N
20	2	4	6	12
16	4	6	8	18
12	6	8	10	24
8	8	10	12	30
4	10	12	14	36

Figure 1.3: Market Demand Schedule
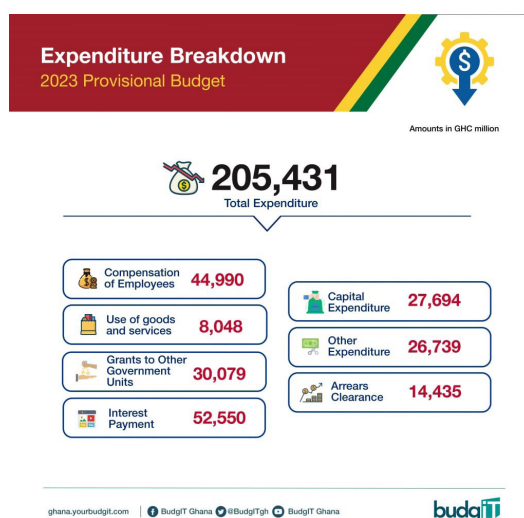
Figure 1.4: Infographic on Expenditure
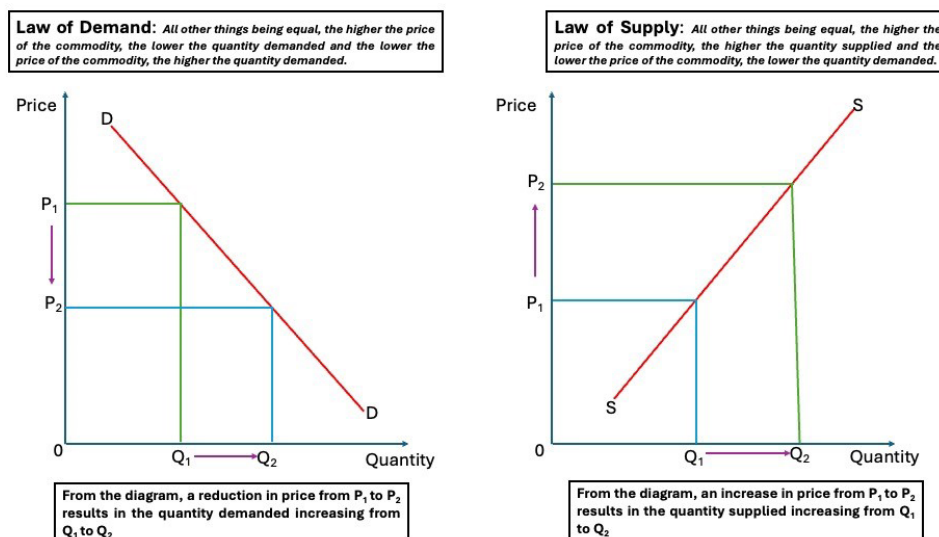
***Figure 1.5:** Infographic of Demand and Supply*

Infographics visualises data using charts, graphs, tables/schedules and maps to show information like economic trends, comparisons and distributions. Visualisation helps make it easier to understand the main points of the data quickly. They also simplify complex economic ideas, models and connections into easy-to-understand visuals, making them more accessible to everyone.

Activity 1.4 Creating an Infographic for one Person's Demand Schedule

1. The table below is the demand schedule of Blessing for her purchase of balls of Kenkey during the month.

Price (Gh¢)	Quantity Demanded (balls of Kenkey)
2	20
3	18
4	15
5	12
6	8
7	4
8	1

2. Analyse Blessing's demand schedule by drawing a line or bar graph.

3. In Economics, price is conventionally plotted on the vertical axis (Y-axis) of a graph. The quantity of goods or services is typically plotted on the horizontal axis (X-axis).

4. Politely share your findings with your friends or relatives.

Activity 1.5 Creating and Infographic for a Market Demand Schedule

1. Add the demands of Ofori, Fati and Esinam together to get the market demand in the table below.

2. Draw the demand curve for Ofori and Esinam on the same line graph (alternatively, you can use MS Excel). Remember price on the Y-axis, Quantity on the X-axis.

3. Draw the market demand curve on a different line graph.

Price (Gh¢)	Quantity Demanded (Tubers)			
	Ofori (O)	Fati (F)	Esinam (E)	Market Demand (O + F + E)
10	10	12	8	
12	7	10	7	
15	5	7	5	
18	3	5	3	
22	2	3	2	
25	1	2	1	

4. Explain how infographics helps to understand the individual and market demand curves.

5. Present your findings to your friends in class.

TOOLS OF ECONOMIC ANALYSIS – ALGEBRA

Algebra in mathematics uses letters and numbers in equations to represent and solve problems. Algebra plays an important role in analysing economic issues and solving problems. For example, knowing how to calculate Revenue and Cost helps businesses to decide how much to produce or sell. Revenue is the money made by selling a quantity of goods and is calculated by multiplying the price of a good by the quantity sold.

This can be written as an equation: **Revenue = Price × Quantity**

$$R = PQ$$

Cost is the amount spent on producing goods. This can be written as an equation:

Total Cost of Production = Fixed Costs + Variable Costs

$$TC = FC + VC$$

Using these equations helps business owners and economists to calculate profit margins and estimate business growth.

Some Examples of Algebra in Economics

Demand Function

The demand function shows how the quantity of a commodity that people want to buy (demand) changes as the price of the product also changes. Thus **Qd = f (P)**

Qd: This stands for "**quantity demanded**," or how much of a product people want to buy.

P: This is the "**price**" of the product. The price indicates how much consumers must pay for each unit of the product. The **f** (function) expresses the relationship between Quantity demanded and Price.

The **demand function** can also be written as an equation: **Qd = a − bP**

Where:

Qd: Quantity demanded

P: The price of the product.

a: This is the **constant** of demand. It is called the "intercept" of demand. It shows how much people would demand if the price of the commodity were zero or if certain factors like income or preferences do not affect demand. It is like the starting point of demand.

b: This is the "**slope**." It tells us the rate of change of quantity demanded in relation to the price change. Usually, as the price goes up, demand goes down (and vice versa). In this example, as b is **-20**, it means for every Gh¢1 increase in the price, demand will decrease by 20 units. The slope in this case is very steep.

For example, let us say the demand equation for local rice at the school canteen is:

Qd = 500 − 20P. Can you tell what the variables in the demand function mean?

a = 500: This means if the price were zero, students would demand 500 units of rice.

b = -20: This means that for every Gh¢1 increase in price, the demand decreases by 20 units. This could also mean that if the price increases by Gh¢1, 20 units of the rice will not be purchased.

If the price of rice is Gh¢10, we can calculate the demand like this:

Qd = 500 – 20 (10)	---	Substituting the value of P with Gh¢10
Qd = 500 – (20×10)	---	Expanding the bracket
Qd = 500 – 200	---	Simplifying
Qd = 300 units of rice	---	Final answer

So, when the price is Gh¢10, people or students would want to buy 300 cups of rice.

Other Algebraic Expressions of Economic Concepts

Supply Function

$Qs = a + bP$

Where:

Qs: Quantity supplied (how much sellers are willing to sell).

a: This is the Constant/Intercept of supply. It is the starting point of supply when the price is zero.

b: How supply changes with price (usually, as price goes up, supply goes up too).

P: The price of the product.

Production Function

$Q = f(L, K)$

Q: Total output (how much is produced).

L: Labour (workers).

K: Capital (machines, money, tools).

Utility Function

$U = f(x_1, x_2)$

U: Utility (how much satisfaction a consumer gets from goods).

x_1 and **x_2**: utility of different goods or products a consumer buys.

These equations will be further explained in our subsequent lessons. Learner, read about the production function and the utility function before your teacher comes to teach them in class.

Note

Several other Economic concepts can be represented with algebraic expressions.

Go ahead and explore more from the internet and other relevant Economics textbooks!

Activity 1.6 Calculating Quantity supplied

1. If the price of one (1) orange at your school's canteen is Gh¢1.50p and given the equation for supply function of oranges is $Qs = 300 + 20P$, calculate the supply of oranges (Qs).

2. Follow these steps as a guide to arrive at your answer:

    Step 1: Quote the supply function given in the question.

Step 2: Substitute the value of Price for 'P' in the equation.

Step 3: Solve the equation to arrive at the final answer.

3.   Remember to add 'units' (in this case, oranges) to your answer.

4.   Show your work to your friends in class and explain to them how you arrived at the correct answer. Be polite to your friends and show respect as you explain.

Activity 1.7 Utility Calculation Activity

1.   Consider Moses consuming two different commodities, kenkey (x) and fish (y). The combination of the two commodities will give him certain level of utility (satisfaction).

2.   Determine the utility for Moses if his utility functions are:

   a. $U = x + 2y$ when $x = 3$ and $y = 4$

   b. $U = 3x + 3y$ when $x = 5$ and $y = 3$

   c. $U = 4x^2 + 3y^3$ when $x = 3$ and $y = 2$

3.   Remember to add 'utils' as the unit of measurement for utility.

4.   Compare and comment on the three different satisfactions derived by Moses.

5.   Indicate which of the three levels of satisfaction is most preferable for Moses and why.

6.   Share your findings with your friends in class.

Activity 1.8 Problem-Based Learning Activity

1.   Your teacher will put you into small groups for this activity and assign roles (e.g., researcher, presenter, calculator)

2.   Investigate an economic issue related to the demand or supply of a commodity in your community (for example, how price changes affect the quantity demanded of a commodity).

3.   Identify relevant algebraic equations or functions for the issue.

4.   Create an equation to represent changes in demand or supply based on price variations/changes.

5.   Present your findings to other groups in the class

   Note

   Use local examples or scenarios (for example, changes in market prices for tubers of yam). Respect the background of your friends.

EXTENDED READING

- [Basic Tools in Economic Analysis - WikiEducator](#)

- [https://images.app.goo.gl/rogG2mspv9TGBSM16](#)

- Any relevant Economics Textbook in the school library as recommended by your teacher.

REVIEW QUESTIONS

1. Economese

   Copy the following table and match the definitions in the table below with the correct economese:

Economese	Definition
Opportunity Cost	The total value of all goods and services produced within a country's borders in a specific time period.
Inflation	The additional satisfaction or benefit received from consuming one more unit of a good or service.
Tax	The value of the next best alternative that is given up when making a decision.
Marginal Utility	The rate at which the general level of prices for goods and services rises, leading to a decrease in the purchasing power of money over time.
Supply	A compulsory financial charge or levy imposed by a government on individuals, businesses, to fund public expenditures and government activities.
Gross Domestic Product (GDP)	the number of unemployed individuals as a percentage of the labour force.
Unemployment rate	the quantity of a good or service that consumers are willing and able to purchase at various prices during a given time period.
Demand	the total amount of a specific good or service that producers are willing and able to sell at various prices over a given time period.

2. Infographics

   The table below represents the supply schedule of four groundnut sellers in the Takyiman market. It shows the quantity of bowls of groundnut sold by each seller in the market at various prices.

Price (Gh¢)	Quantity Supplied of Groundnut (Bowls)				
	Fatima	Agyei	Yayra	Kwansima	Market Supply
2	2	3	4	5	
4	3	4	5	6	
6	4	5	6	7	
8	5	6	7	8	
10	6	7	8	9	

   a. Calculate the market supply of groundnuts (bowls) at each price.

   b. Draw a line graph to show the supply curve for each seller.

    c. On the same axes plot the market supply curve.

    d. Compare and contrast the individual supply curve with the market supply curve of groundnut sellers in the Techiman market.

3. Algebra

In Ghana, two local markets; Market A and Market B sell rice. The demand for rice in each market can be described by the following demand functions:

Demand Function for Market A: QA = 30 - 2P

Demand Function for Market B: QB = 40 - 3P

Where: QA and QB are the quantities of rice (in kilograms) demanded in Markets A and B, respectively. P is the price of rice in Ghana cedis (Gh¢).

Prices for rice over a certain period are Gh¢ 5, Gh¢ 8 and Gh¢ 10

Questions

a. For each price, calculate the quantity demanded for rice in both Market A and Market B using the demand functions.

b. Compare the quantity demanded in both markets at each price.

c. Discuss how the demand changes with price in both markets.

Multiple Choice Questions

1. Which of the following best defines "inflation"?

    A. A decrease in the general price level of goods and services

    B. An increase in the general price level of goods and services

    C. The government's control over the economy

    D. The total value of all goods and services produced in a country

2. What does "opportunity cost" refer to?

    A. The amount of money spent on advertising

    B. The cost of producing one more unit of a good

    C. The loss of potential gain from other alternatives when one alternative is chosen

    D. The total expenditure on all goods and services

3. Which type of infographic is most effective for showing the relationship between supply and demand?

    A. Bar chart

    B. Flow chart

    C. Line graph

    D. Pie chart

4. What is the primary purpose of using infographics in explaining economic issues?

    A. To generate revenue for the publisher

    B. To make complex data visually appealing and easier to understand

    C. To obscure data with artistic design

    D. To provide lengthy textual explanations

5. If the demand function for a product is given as Qd = 50 - 2P, where Qd is the quantity demanded and P is the price, what is the quantity demanded when the price is GHS 10?

    A. 0

    B. 10

    C. 20

    D. 30

6. If the total cost (TC) of producing X units of a product is given as TC = 100 + 5x, what will be the total cost of producing 20 units?

    A. GHS 100

    B. GHS 200

    C. GHS 300

    D. GHS 400

DEMAND

CONSUMERS' RATIONAL DECISION MAKING

DEMAND FOR GOODS AND SERVICES

INTRODUCTION

Dear learner, welcome to Section 2. Do you know that **Demand,** or what people want to buy drives everyday decisions for consumers and businesses? Ranging from the price of foodstuffs to the cost of services, various factors influence how much of a product people want to buy. But what exactly causes demand to change and how do economists tell the difference between changes in quantity demanded and changes in demand?

In this section, you will explore the key factors that affect demand, such as price, income, and consumer preferences, and how they affect your purchasing decisions. You will also learn the important distinction between a **change in quantity demanded** and a **change in demand**. By learning more about these two concepts, you will gain a deeper understanding of how markets operate and how different economic forces shape the demand for goods and services in Ghana.

KEY IDEAS

- Factors that affect demand include price, income, taste and preference, price of related commodities, population, and the nature of the commodity.
- Change in quantity demanded refers to the situation where changes in the price of a commodity lead to changes in the quantity demanded of that commodity.
- Change in demand is a bodily shift in the entire demand curve due to factors other than the price of the commodity itself.

PRICE AS A FACTOR THAT AFFECTS DEMAND FOR A COMMODITY AND CHANGE IN QUANTITY DEMANDED

The relationship between Price and Demand is explained in the Law of Demand which states that "All things being equal, more of a commodity is demanded at lower prices than at higher prices and vice versa".

The Law of Demand shows there is an inverse relationship between the price of a commodity and the quantity demanded for the commodity. This relationship is the result of the fact that a price reduction is an encouragement to the rational consumer as he/she can buy more of the commodity. An increase in the price is an upset to the consumer so he/she buys less of the commodity.

The demand curve stays in the same place on a price/quantity demanded graph and all points along it represent the quantity demanded at a specific price. So, the relationship between the two variables can be seen as a movement along the curve. The curve in an inverse relationship slopes downwards from left to right.

Any change in demand as a result of either an increase or decrease in price is known as a **change in quantity demanded**. Study the table below which is known as a demand schedule

Table 2.1: Demand Schedule

PRICE OF COMMODITY X IN GH¢	QUANTITY DEMANDED OF COMMODITY X
1	12
2	8
3	5
4	2

From this demand schedule, a graph can be drawn to visualise the relationship between price and quantity demanded as shown in *Figure 2.1*.

Figure 2.1: Relationship between price and quantity demanded

From *Figure 2.1*,

- Can you see the inverse relationship between price and quantity demanded?
- What is the quantity demanded when the price is 1.5 cedis?
- What is the price when the quantity demanded is 14?

Activity 2.1 Effect of Price on Quantity Demanded

Instructions: The following activity investigates your own behaviour as a rational consumer. A rational consumer is someone who makes purchasing decisions based on the available information to maximise their satisfaction. In this case there is only piece of information – price.

Do this activity with a friend.

1. Choose and agree on a Ghanaian commodity of your choice that you both like to eat regularly (e.g., plantain, maize, or fresh carrot)

2. Use your pen or pencil to divide your paper into two.

3. Create a table on each side of the paper, with two columns and 6 rows for each table.

4. On the left-hand table copy the 5 separate possible prices for the commodity you have chosen. These increase from 5 to 20 cedis.

5. On the right-hand table copy the 5 separate possible prices for the commodity you have chosen. These decrease from 30 to 10 cedis.

6. Next to each price, think about the law of demand and write the quantity you would be prepared to buy at that price.

   Suggested table to be drawn on each side of the paper:

Price of commodity (Ghc)	Quantity bought (pieces)	Price of commodity (Ghc)	Quantity bought (pieces)
5		30	
8		24	
10		21	
15		17	
20		10	

Look at the two tables you have completed and answer the following questions.

a. Describe how your quantity demanded changes when price increases?

b. Describe how your quantity demanded changes when price decreases?

c. Do you agree that the changes in the quantity demanded were made because of the changes in the price of the commodity?

d. On graph paper draw two demand curves. Remember that price is always the Y-axis and quantity demanded the X-axis. You can use a different colour for each curve.

e. Explain how your infographic shows the Law of Demand.

f. In what two ways might farmers/producers respond to price changes?

7. Compare your work with others who have done this activity.

8. Be honest when completing the tables and answering the questions.

OTHER FACTORS THAT AFFECT DEMAND AND CHANGE IN DEMAND

Consumers Not Only Consider Price When Buying

What factors, other than price, might you consider when you are going to buy an item?

Read this example:

Taking GH¢ 6000, a person went to the Bolgatanga market intending to buy six bags of maize at GH¢ 600 each. When they arrived at the market, they noticed that due to good growing conditions in the rainy season there was much more maize for sale than usual. They decided to use all their money to buy 10 bags. That way when prices rose in the dry season when maize did not grow very well, they would not need to buy any, so would save money.

In this example the person that bought 10 bags instead of the six bags also considered the seasonal differences in the quantity of maize available. So other factors such as weather conditions, expectation of future changes in price, income level of consumers, competition from other buyers and so on influence people to buy more or less of a commodity.

A change in demand refers to the increase or decrease in the quantity of goods and services that can be purchased at a fixed price due to changes in factors other than the price of the commodity. This results in a complete shift of the demand curve. The curve shifts to the right when more is demanded and to the left when less is demanded. This effect is also known as a shift in demand.
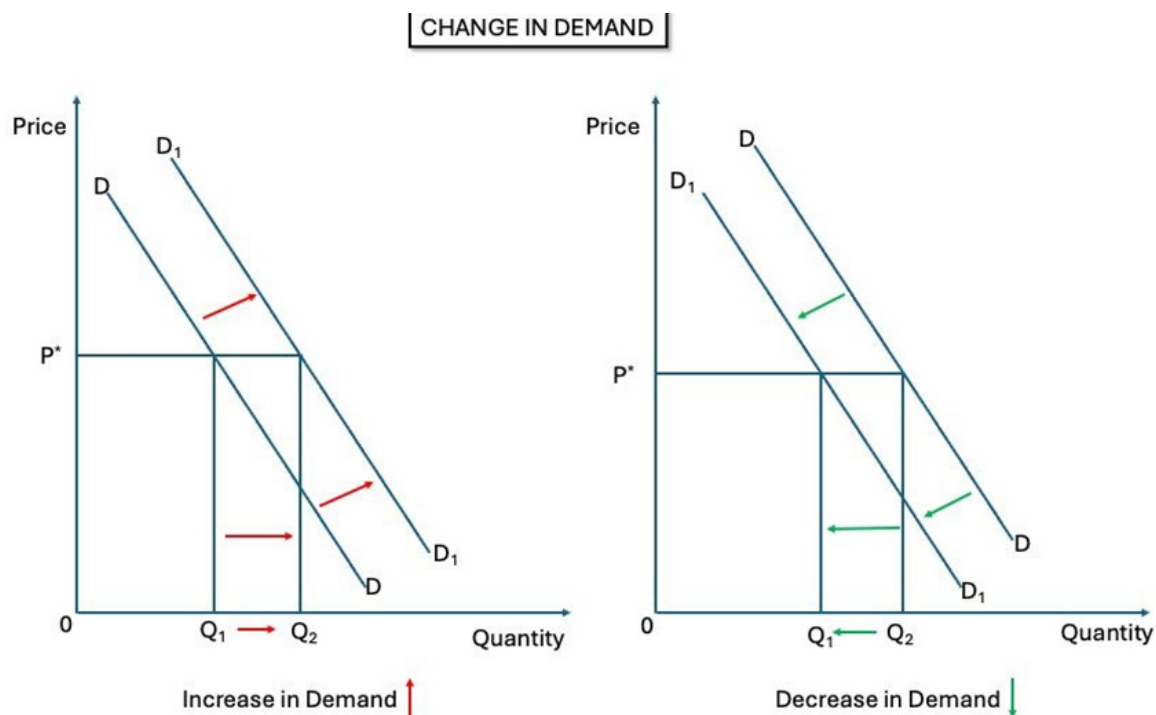
CHANGE IN DEMAND

Figure 2.2: Change in Demand

The first graph shows a right-hand shift in the curve, D to D1, representing an increase in demand. The second graph shows a left-hand shift in the curve, D to D1, representing a decrease in demand. In both graphs, price stays the same so the demand must be influenced by other factors.

Other Factors That Affect the Demand of a Commodity

1. **The income of the buyers:** At a fixed price of the commodity, when buyers' income increases their demand for normal goods also increases but their demand for inferior goods decreases. (see glossary for definitions of normal and inferior goods)

2. **The taste and preference of the buyer:** A change in the preference or taste of the consumer due to varieties in the market will lead to a change in the demand for the commodity. For example, the availability of a variety of soft drinks has changed consumers' tastes and preferences.

3. **The number of buyers:** If the number of consumers in the market increases, the demand for commodities also increases but if the number of consumers decreases, the demand for commodities also decreases.

4. **The weather and climate:** During the rainy season, the demand for raincoats and umbrellas increases and is opposite in the dry season.

5. **Expectation of future price change:** Demand will increase when consumers anticipate that there will be an increase in the price level of goods in the future. For instance, parents will buy more exercise books at a price of GHC 5.00 now if they anticipate that the price of exercise books will increase soon.

6. **The price of a related commodity:** When the price of a commodity rises, the demand for its substitute increases because consumers opt for the cheaper option. For example, if all lemonade drinks are priced the same and the price of one brand increases, people will buy more of the other brands, which are now relatively cheaper.

7. **Government policy on taxation:** When the tax is raised on certain goods by the government, demand falls because the extra tax might stop consumers buying.

Activity 2.2 Identifying the Factors That Affect Demand (Other Than Price)

1. Imagine there is a local drink shop in your neighbourhood called "Peace and Comfort". The shop sells different flavours of a local soft drink at a fixed price of GHC 5 per bottle.

2. Consider the following statements and explain how consumers might respond in each case to change the demand. The first one has been done for you.

   a. If people in the neighbourhood get higher-paid jobs or receive bonuses

      E.g. Response to demand: Consumers will have more money to spend, hence demand for local drinks will increase.

   b. If a popular social media influencer shares a post about how good one flavour of Peace and Comfort's unique local drink is.

      Response to demand:

   c. If some families move out of the neighbourhood.

      Response to demand:

   d. If people see a poster that states prices at Peace and Comfort will fall the next day.

      Response to demand:

   e. If a nearby bakery starts selling cookies that can be consumed together with the drinks.

      Response to demand:

   f. If another shop that sells the same kind of local drinks for GHC 5 per bottle decides to give a special discount to customers for a month

      Response to demand:

3. Identify the type of demand factor in each of the statements in question 1 above (1a to f)

   E.g., a: The demand factor is '**changes in the income of consumers**'

4. Write a short paragraph to summarise how the factors identified in question 2 above (other than price) can affect the demand for a product like local drinks.

5. Compare your findings with your friends in class. Be polite and open-minded as you share your work with your friends.

Summary of the Two Ideas Covered in this Section on DEMAND

The following table shows the differences between **Change in Quantity Demanded** and **Change in Demand**

Table 2.2: Change in Quantity Demanded vs Change in Demand

	Change in Quantity Demanded	Change in Demand
Definition	It is the change in how much of a commodity that consumers want to buy when the price changes.	It is the change in how much of a commodity that consumers want to buy due to factors other than price.
Cause	It is caused only by changes in the price of the good.	It is caused by changes in factors like income, tastes, price of related goods, expectations, or number of buyers.
Visualisation using a line graph	It shows the movement along the same demand curve (up or down).	It shows a bodily shift of the entire demand curve either to the right (increase in demand) or to the left (decrease in demand).
Example	If the price of a torchlight increases, the quantity demanded will fall.	The rainy season increases the demand for umbrellas while the dry season decreases the demand for them.
Effect on Market	Quantity demanded increases or decreases.	Demand increases or decreases.

Examples

1. Change in Quantity Demanded (Movement along the same curve)

   When the price of oranges increases or decreases, it will lead to a corresponding change in the quantity demanded. For example, if the price of an orange falls from GH¢2 to GH¢1.50, the quantity demanded for oranges will increase. This change shows the downward movement along the same curve.

2. Change in Demand (Shift of the Curve)

   For example, if people earn more money, they will buy more luxury goods like high-end mobile phones regardless of price changes, so the demand curve shifts to the right.

Activity 2.3 Differences between 'Change in Demand' and 'Change in Quantity Demanded'

Instructions: Do this activity with a friend of your choice.

1. Choose a Ghanaian commodity that is a staple food (e.g., fufu, kenkey, gari).
2. **Write down definitions for**
   a. Change in Demand
   b. Change in Quantity Demanded
3. **Sketch**
   a. Two curves to show a change in demand for your selected staple food, e.g. Kenkey because important health benefits of eating it have been discovered.
   b. A curve to show what happens to the change in quantity demanded when there is a surplus of your staple food in the market.
   c. Label your sketches with axes, key features and add titles.
   d. Explain the differences between your two sketches in terms of change in demand and change in quantity demanded.

EXTENDED READING

- https://mru.org/courses/principles-economics-microeconomics/change-demand-vs-change-quantity-demanded

- https://courses.lumenlearning.com/wmintrobusiness/chapter/video-change-in-demand-vs-change-in-quantity-demanded/

- https://homework.study.com/explanation/with-the-aid-of-clearly-labeled-diagrams-explain-the-difference-between-a-change-in-quantity-demanded-and-a-change-in-demand.html

- https://www.investopedia.com/terms/c/changeindemand.asp

1. Cassava is a staple food in Ghana, widely consumed across various regions. Its demand is influenced by various factors, including price fluctuations. Understanding how price changes affect demand can help farmers, businesses and policymakers to make informed decisions. In recent months, the price of cassava has increased which has changed the quantity demanded. The increase in the price of cassava was due to poor weather conditions affecting harvests. The data below shows the quantity demanded (kg) of cassava at various prices (Gh¢ per kg).

Price (Gh¢)	Quantity Demanded (kg)
2	1000
3	800
4	500
5	300
6	100

Questions

a. Explain how price affected the quantity demanded of cassava as the price increased from Gh¢ 2 to Gh¢ 6.

b. Illustrate the change in quantity demanded of cassava in a graph using a graph sheet or MS Excel.

c. Analyse the relationship between the price and quantity demanded of cassava.

d. Explain how consumer behaviour may change if the price of cassava decreases again.

e. What may this mean for farmers and the sellers at market?

f. Suggest one thing the government could do to stop cassava prices changing so much and ensure food security.

2. Imagine yourself as a Senior High School student, preparing for your upcoming Economics exams. You decide to buy an Economics textbook to help with your studies. The current price of the textbook is GH100, and you are willing to buy one copy at this price. However, after checking a few local bookstores, you notice that the same textbook is on sale for GH80 at a nearby store.

Questions

a. Other than price suggest four factors that may affect the demand for the textbook.

b. Explain why a change in the price of the textbook from GHS 100 to GHS 80 could represent a change in quantity demanded for the textbooks.

c. Distinguish between the change in price to a situation where due to a general increase in interest in Economics or an entry of new students needing textbooks, the overall demand for textbooks increases, shifting the demand curve.

d. Graphically illustrate a change in quantity demanded and a change in demand using different commodities.

Multiple Choice Questions

1. What happens to the quantity demanded of a product when its price decreases, assuming all other factors remain constant?

    A. It becomes unpredictable

    B. It decreases

    C. It increases

    D. It remains unchanged

2. If the price of a good increases, what is the likely effect on the quantity demanded?

    A. It becomes elastic

    B. It decreases

    C. It increases

    D. It remains constant

3. Which of the following best illustrates the concept of the law of demand?

    A. As price increases, demand increases

    B. As price decreases, demand decreases

    C. As the price increases, the quantity demanded decreases

    D. As the price remains constant, demand increases

4. Which of the following is NOT a factor that can shift the demand curve?

    A. Consumer income

    B. Consumer preferences

    C. Price of related goods

    D. The price of the good itself

5. How does an increase in consumer income typically affect the demand for goods?

    A. Demand becomes elastic

 B. Demand decreases

 C. Demand increases

 D. Demand remains the same

6. If a new study shows that a certain food product is unhealthy, what is likely to happen to the demand for that product?

 G. Demand will become elastic

 H. Demand will decrease

 I. Demand will increase

 J. Demand will remain unchanged

UTILITY

CONSUMERS' RATIONAL DECISION MAKING

CONSUMER BEHAVIOUR

INTRODUCTION

Learner, welcome to Section 3 of Year 2 Economics. In this section, you will focus your attention on another interesting concept in Economics. One of the core ideas in Economics is the concept of **utility**. This is the satisfaction or benefit a consumer derives from consuming goods and services. In Ghana, whether it is deciding how much kenkey to buy at a food joint or how many minutes to top-up on a mobile phone, consumers are constantly balancing their resources to maximise their satisfaction. But how do you recognise when a consumer is fully satisfied? In Economics this state of full satisfaction is called equilibrium. This section helps you to understand this the idea of equilibrium in utility, and explores different types of utility, Total Utility, Marginal Utility, and Average Utility). You will learn how to draw the utility curves, what they mean and how they help to explain consumer behaviour.

KEY IDEAS

- Equilibrium in utility refers to a state in which a consumer has allocated their resources (usually income) in such a way that gives them the highest satisfaction for each commodity they consume.
- In Economics, utility refers to the satisfaction or pleasure that a consumer derives from consuming goods and services. It is a measure of the happiness or benefit those results from making specific choices in the marketplace.
- The consumption pattern of a consumer can be expressed in the form of Total Utility, Marginal Utility and Average Utility.
- The utility of the consumer can further be explained using Total, Marginal and Average utility curves.

EQUILIBRIUM IN UTILITY AND CALCULATION OF TOTAL UTILITY, MARGINAL UTILITY, AND AVERAGE UTILITY

A consumer always aims to make the best possible choices with their limited income to maximise satisfaction. The consumer is at **equilibrium** when the satisfaction (or utility) gained from consuming a good is equal to the amount of money spent on it. In economic terms, this means that the **marginal utility of the good must be equal to its price**.

In Economics utility is measures in UTILS. They are theoretical units which make comparisons easier when analysing how consumers use their resources to give them satisfaction. This can be expressed mathematically in terms of a single commodity and multiple commodities as:

For a single commodity, the consumer is in equilibrium when:

$$MU_x = P_x$$

Where, MU_x is Marginal Utility of commodity X and P_x is price of commodity X

Example

A rider bought a bottle of water for GHC10 after riding for 30 minutes because they were very thirsty. The rider thought that the satisfaction he gained from drinking the water was the highest it could be. This meant that the satisfaction of drinking the water was the same as the price so its marginal utility must be 10 utils. This demonstrates the equilibrium state because the price paid is equal to the marginal utility.

For multiple commodities, the consumer is in equilibrium when the marginal utility per cedi spent on Commodity X is equal to the marginal utility per cedi spent on Commodity Y. In other words, it is the ratio of the marginal utility of Commodity X to the Price of Commodity X and the ratio of the marginal utility of Commodity Y to the Price of Commodity Y.

$$\frac{MUx}{Px} = \frac{MUy}{Py}$$

MU_X is the marginal utility of Commodity X,

P_x is the price of Commodity X,

MU_Y is the marginal utility of Commodity Y and

P_Y is the price of Commodity Y.

Total Utility

Total utility is the total satisfaction a consumer derives from consuming a certain amount of goods or services. The total utility tells how much satisfaction that is derived from the total amount of a good consumed. It can also be expressed as the addition of all the marginal utilities to the last unit of a commodity consumed.

If '***n***' units of a good is consumed, the total utility can be expressed mathematically as:

Total Utility (TU) $= U_1 + U_2 + U_3 + ... + U_n$

Where:

- U_1 is the utility from the first unit consumed,

- U_2 is the utility from the second unit consumed,

- U_3 is the utility from the third unit consumed,

- and so on, up to U_n which is the utility derived from the ***n-th*** unit consumed.

Marginal Utility

Marginal utility is the additional satisfaction derived from consuming one more unit of a good or service. It helps to understand how much more satisfaction you derive from consuming one more unit of a commodity. Marginal utility decreases as you consume more and more of the same commodity. This leads to the idea of *diminishing marginal utility*.

Marginal utility is calculated as the change in total utility divided by the change in the units of the commodity consumed. This can be expressed mathematically as:

$$MU = \frac{\Delta TU}{\Delta Q}$$

ΔTU is the change in total utility

ΔQ is the change in quantity

Where $\Delta TU = TU_2 - TU_1$ - represents the change in total utility after consuming another unit of a good.

and $\Delta Q = Q_2 - Q_1$ – represents the change in quantity after consuming another unit of a good.

By replacing ΔTU and ΔQ in the original equation above you get

$$MU = \frac{\Delta TU}{\Delta Q} = \frac{TU_2 - TU_1}{Q_2 - Q_1}$$

The Law of Diminishing Marginal Utility

The law of diminishing marginal utility states that 'as more and more units of a commodity are consumed, the additional satisfaction derived from each additional unit consumed decreases.'

Example: Imagine yourself eating Kenkey, as you consume more and more of the Kenkey, your marginal utility will decrease. After you consume the first ball, any additional consumption decreases the satisfaction gained after eating the previous one.

Average Utility

This is the amount of satisfaction a person derives from consuming **each unit of a good** or service. It shows how much satisfaction a person derives per unit of a good consumed. It is calculated by dividing the total *utility* by the number of units consumed.

It is expressed mathematically as:

$$AU = \frac{TU}{Q}$$

Where, TU = Total Utility, and Q = Quantity

For example, Kudus Mohammed, after playing a football match drank some bottles of water and realised the following **total utilities**.

After the 1st bottle   8 utils

After the 2nd bottle   15 utils

After the 3rd bottle   21 utils

After the 4th bottle   25 utils

After the 5th bottle   27 utils

After the 6th bottle   27 utils

The marginal utilities are calculated as follows

1st bottle: 8 utils   2nd bottle: $\frac{15-8}{2-1}$ =7 utils   4th bottle: $\frac{25-21}{4-3}$ = 4 utils

Can you calculate the marginal utility for the 3rd, 5th and 6th bottles?

Average utilities are calculated as follows

1st bottle: 8 utils   2nd bottle: utils   3rd bottle: utils

Can you calculate the average utility for the 4th 5th and 6th bottles?

Have a look at this table which gives you the total utility and ALL the marginal and average utilities for Kudos' water drinking:

Table 3.1: Total utility, marginal and average utilities

Bottle number	Total Utility (utils)	Marginal Utility (utils)	Average Utility (utils)
1	8	8	8.00
2	15	7	7.50
3	21	6	7.00
4	25	4	6.25
5	27	2	5.40
6	27	0	4.50

This table shows that as more of the commodity is consumed, the total utility increases but the marginal utility falls continuously. This explains the law of diminishing marginal utility. If Kudus had bought each bottle of water at GHC4, he would be in equilibrium at the level of consuming the 4th bottle. This is because the marginal utility at the 4th bottle is 4 utils.

You should notice that in the first line of the table, Total, Marginal and Average Utility are all the same. This is because only ONE bottle of water has been consumed. So, the first unit of consumption (1) is setting the initial values. Total Utility is 8 after consuming one bottle, Marginal Utility is calculated by TU/Q which is 8/1 = 8 utils. For Average Utility there are no previous values to compare with, so it is simply a case of $MU = TU_1 - TU_0/Q1-Q0 = 8-0/1-0 = 8$ utils

If you check the infographic below then you will see that all three graphs start at the same point.

Activity 3.1 Calculating Total Utility, Marginal Utility and Average Utility

For this activity you should work with a friend either in class or at home.

Materials needed:

- A notebook and pen
- A list of specific food items (e.g., apples, biscuits, or chocolates)
- A calculator

Instructions

Follow these steps to explore utility concepts and carry out calculations with your friend. Take turns in completing each part of the task. Discuss your findings at each stage.

Step 1: Understanding Utility Concepts

Before starting the activity, discuss with your partner what the following terms mean:

1.   Total Utility (TU)

2.   Marginal Utility (MU)

3.   Average Utility (AU)

Write down these definitions in your notebook so that you can refer to them later. Think of a few examples where you feel satisfied after consuming something (e.g., food, drinks, haircut, bus ride).

Step 2: Choosing a good and creating your table

Now, you will carry out a simple experiment.

1.   Choose one good (e.g., apples, biscuits, or chocolates) that you will imagine consuming.

2.   Create a table in your notebook like the one below to record your results. Use a scale from 1 to 10 to show how much satisfaction you will get after eating each unit. For example, after eating one apple, you might feel 8 out of 10 satisfied, but after eating more, your satisfaction could change.

3.   Assuming that at unit six, your satisfaction score is -2.

Number of Units Consumed (e.g. Apples)	Satisfaction (Utility) Score (utils)	Total Utility (TU) (TU = Running total of satisfaction scores – add next satisfaction to last total) utils	Average Utility (AU) (AU = TU ÷ Number of Units)utils	Marginal Utility (MU) (MU_1 = $TU_2 - TU_1 / Q_2 - Q_1$) utils
1				
2				
3				
4				
5				
6	-2			

Step 3: Recording your satisfaction (Utility) score in the table drawn

With your partner, take turns to complete the following:

1.   Imagine eating the first unit of the good (e.g., one apple). How satisfied do you feel? Both of you should agree on a score (e.g., 8 out of 10) and record it under "Satisfaction (Utility) Score" for 1st unit.

2.   Repeat this for the 2nd, 3rd, 4th, and 5th units (consider the law of diminishing marginal utility.) The sixth satisfaction score is done for you to give you an idea of what to work towards. A negative utility score shows the consumer experiences displeasure, dissatisfaction, or even discomfort from consuming any more of that good!

Step 4: Calculate the Total Utility (TU) for all levels of units consumed.

Step 5: Calculate the Marginal Utility (MU) and Average Utility for each level of unit consumed.

Step 6: Observing and Discussing Results**:** Discuss the following questions with your partner and write your thoughts and answers in your notebook.

1.   What happened to your Marginal Utility as you consumed more and more of the unit? Did it increase or decrease?

2.   How did your Average Utility change as you consumed more and more units?

3.   Why do you think your Marginal Utility might have decreased? Is there a point where you stop enjoying the extra units that you consumed?

Step 7. Reflecting on Real-Life Examples

Finally, think of a real-life situation where you experienced diminishing satisfaction after consuming more and more of the same product (e.g., food, drinks, entertainment). Discuss this example with your partner and each of you should write down your thoughts.

Compare your work with another group of friends. You can also show your work to your teacher if you are not sure of your answers.

Remember to respect and tolerate each other.

TOTAL, MARGINAL AND AVERAGE UTILITY CURVES

The infographic illustrations that show how utility or satisfaction changes with the consumption of additional units of a good or service are known as utility curves (Total, Marginal and Average utilities).

Total Utility curve

The total utility curve shows the total satisfaction that the consumer gets as a result of consuming a certain amount of a good or service. The total utility curve starts at the origin (at point 0,0) because zero consumption yields zero results or utility. As the consumer consumes more and more of the commodity or service, total utility rises at an increasing rate, then a decreasing rate to a maximum and eventually declines when the utility becomes negative (dissatisfaction).
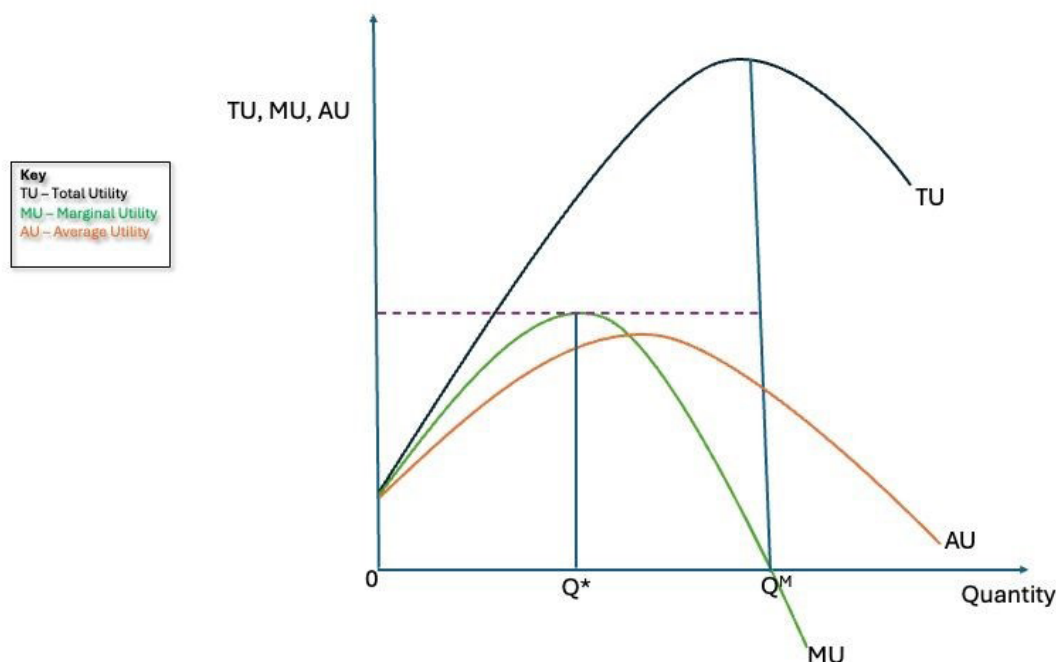
Marginal Utility curve

The marginal utility curve shows the level of utility the consumer gets as a result of consuming an additional unit of a good or service. The marginal utility curve starts at 0 because the consumer has not consumed the good. It rises to the point where the first good is consumed and is equal to the total utility. It then slopes downwards to the right, starting following the law of diminishing marginal utility which says that the consumption of additional units results in a decrease in marginal utility. The marginal utility becomes negative when the marginal utility curve cuts the X-axis.

Average Utility curve

The average utility curve shows the utility per unit of consumption of the commodity. It is the ratio of the total utility to the units of the commodity consumed. The pattern of the average utility curve is similar to that of the total utility, and it is determined by the quantity of the commodity consumed.

It rises initially showing the influence of utility and finally falls as a result of the impact of diminishing marginal utility.

The quantity consumed of the commodity is on the horizontal or x-axis of the graph while the average utility is on the vertical or y-axis. **Figure 3.1** shows how the total utility, marginal utility, average utility curves look on an infographic.

Figure 3.1: Total utility, marginal utility and average utility curves on infographics

Activity 3.2 Drawing the TU, AU and MU Curves

Number of Units Consumed (Apples)	Total Utility (TU)	Average Utility (AU) (AU = TU ÷ Number of Units consumed)	Marginal Utility (MU) ($MU_1 = TU_2 - TU_1 / Q_2 - Q_1$)
1	8	8	8
2	14	7	6
3	18	6	4
4	21	5.25	3
5	23	4.6	2
6	22	3.6	-1

Instructions

1. You will need a piece of graph paper, a sharp pencil, ruler and some coloured pencils to draw each curve.

2. Review the information in the table which is based in the consumption of apples.

3. Use the information in the table to draw the Total Utility Curve (TU), Average Utility Curve (AU) and Marginal Utility Curve (MU) on the same graph axes or you can use MS Excel if you know how to draw three graphs on the same axes using the software.

Step 1: Plot the TU, MU, and AU values on the y-axis (scale: 1cm to 4 units) against the values of the units consumed on the x-axis (scale: 1cm to 1 unit).

Step 2: Using a pencil and your free hand, join the points you have plotted for each utility concept to reveal the **TU, MU, and AU** curves. Describe your curves.

Step 3: Given the price of one apple as Ghc 4.00, determine the equilibrium of the consumer from your graph. Do you remember the formula for equilibrium in the utility of a single commodity consumed?

EXTENDED READING

*   https://www.investopedia.com/ask/answers/032615/what-concept-utility-microeconomics.asp

*   https://youtu.be/WFykae1NIPY?si=DKdO_qMgzfYRhDPT

1. Ama is a university student living in Kumasi, Ghana. Like many other students, she has a limited budget for food each week. She enjoys rice, a staple in her diet, but must decide how to allocate her budget to maximise her satisfaction (utility).

    a. Explain how Ama's budgeting relates to marginal utility.

    b. Explain how the law of diminishing marginal utility affects her budget.

2. A consumer buys 5 units of a product X at a price of Gh₵ 6 each. The total utility derived from consuming these units is as follows:

Units consumed	Total Utility	Average Utility	Marginal Utility
1	10		
2	18		
3	24		
4	28		
5	30		

    a. Calculate the marginal utility and average utility of all five consumption levels.

    b. At what level of consumption will the consumer be in equilibrium?

    c. Analyse the relationship between marginal utility and average utility.

3.

    a. Define Total Utility (TU), Marginal Utility (MU), and Average Utility (AU).

    b. Explain the difference between Total Utility (TU), Marginal Utility (MU), and Average Utility (AU) using the consumption of slices of pizza as a real-world example. Eating one slice of pizza gives a total utility of 15 utils. Assume the utility decreases by three after eating each slice of pizza.

4. A consumer consumes units of a product X, with the following total utility schedule:

Units of X consumed	Total Utility	Average Utility	Marginal Utility
1	12		
2	20		

3	25		
4	28		
5	29		
6	27		

Using the above data

a. Calculate the Marginal Utility (MU) and Average Utility (AU) for each unit.

b. Plot the Total Utility (TU), Marginal Utility (MU), and Average Utility (AU) curves on a single set of axes.

c. If the price of each unit of X is 8 cedis mark on your graph the equilibrium and state the marginal utility for this state.

d. Analyse the relationship shown on your graph between the TU, MU and AU curves.

Multiple Choice Questions

1. What is the term for the additional satisfaction derived from consuming one more unit of a good or service?

A. Average Utility

B. Consumer Surplus

C. Marginal Utility

D. Total Utility

2. Which law states that the marginal utility of a good or service decreases as consumption increases?

A. Law of Demand

B. Law of Diminishing Marginal Utility

C. Law of Increasing Opportunity Cost

D. Law of Supply

3. What happens to marginal utility when the consumption of a good or service increases?

A. Becomes zero

B. Decreases

C. Increases

D. Remains constant

4. A consumer buys 3 units of a product, and the total utility is 30. If the marginal utility of the 4th unit is 5, what is the total utility after consuming 4 units?

A. 30

B. 34

C. 35

D. 45

5. Which of the following is a characteristic of marginal utility?

A. Always decreases

B. Always increases

C. Initially increases, then decreases

D. Initially increases, then remains constant

PRODUCTION, COST & REVENUE

FIRMS 'INNOVATIVE DECISION MAKING
PRODUCTION OF GOODS AND SERVICES

INTRODUCTION

Hello learner and welcome to Section 4. This section introduces the concepts of **production, cost, and revenue**. You will explore time or periods in production, investigate **Total Product**, **Marginal Product Average Product**, use graphs to show their relationship and understand how resources like labour and capital contribute to the output of a firm. You will examine how to apply the concept of cost to calculate **Total, Average, and Marginal Costs**. This will help you to understand how firms manage expenses and work to minimise costs while keeping productivity. Finally, you will investigate how businesses generate income by calculating **Total, Average, and Marginal Revenues**, and sketch **revenue curves** to visually represent the relationship between output and earnings.

KEY IDEAS

- Every production process has cost elements and these costs can be expressed as Total Cost, Average Cost, and Marginal Cost. Total cost refers to the sum of all costs paid by firm in the production of goods or services. Average Cost and Marginal Cost are calculated using Total Cost.

- The concepts of production, cost, and revenue can be visualised using curves and other infographics.

- The two methods of production are Capital-intensive and Labour-intensive.

- Time or periods in production are classified into short-run (where at least one factor of production is fixed) and Long-run (where all factors are variable).

- Total Product refers to the total output produced by a firm or individual during a specific period using a given quantity of inputs. Marginal Product and Average Product are both calculated using Total Product.

- Total Revenue is the income generated from selling goods or services over a defined period of time, one month for example. Marginal Revenue and Average Revenue are both calculated using Total Revenue.

TIME PERIODS OF PRODUCTION

Have you ever visited a carpentry shop or any shop where tables, chairs and other furniture are produced in your community? How long has that shop (firm) been producing the furniture? What inputs or tools do they use?

In Economics, the production of goods takes place over different lengths of time. These different lengths of time are known as the **period of production**. Firms based on the periods of production to make decisions about their production processes. There are two main periods of production the **short run** and the **long run**.

Short Run

In the short run, at least one factor of production is fixed. This means that firms cannot fully adjust all inputs and resources immediately. Typically, capital or factory size might be fixed, while labour or raw materials can be adjusted.

Example: A company can hire or lay off workers to respond to changes in demand, but it cannot quickly build a new factory or close an existing one.

Long Run

In the long run, all factors of production are variable. Firms have enough time to adjust all inputs to respond to changes in demand, technology, or market conditions. This period allows for full flexibility in production decisions.

Example: A company can invest in new machinery, expand its factory, or change its location entirely, responding comprehensively to market trends and demands.

Activity 4.1 Understanding Periods in Production

Materials needed: Notebook and pen

Instructions

1. **Identify Periods in production**: List the two time periods in production and briefly define them in your notebook.

2. **Discuss the Periods with a friend or family member**: explain the short run, and the other should explain the long run. Use real-life examples in your explanation, like a farmer hiring workers in the short run or buying land in the long run.

3. **Differentiate Between Short and Long Run**: Create a table in your notebook for differentiating both periods. Focus on their characteristics and what can change in each.

4. **Discuss Business Decisions**: Talk about how businesses decide between short-run adjustments (e.g., hiring more workers) or long-run investments (e.g., expanding production).

5.	Which period do you think is more flexible for businesses? Why?

6.	**Conclusion**: Write a summary of the differences between the short run and long run and share it with the other group of friends in the class.

THE CALCULATION AND DRAWING OF TOTAL PRODUCT (TP), MARGINAL PRODUCT (MP) AND AVERAGE PRODUCT (AP) CURVES

Read the following then answer the three questions.

A bakery shop opens employing a single worker who produces 50 loaves of bread. Consumers demanded more bread than the one employee could produce. Due to this demand two more workers were employed. The first new worker increased production by 70 loaves and the second by 80 loaves of bread.

1.	How many workers were employed and how much bread did each produce?

2.	How many loaves of bread did all workers produce?

3.	Find the mean (average) loaves of bread produced by all workers.

Total Product (TP)

Total Product (TP) refers to the total output produced by a firm or individual during a specific period using a given quantity of inputs (like labour and capital). It changes as the quantity of inputs used increases or decreases. TP at any level is the sum of the marginal products up to that level of input employed. From the case above, the bakery shop produced 200 loaves of bread (50 + 70 + 80) when three workers were employed. Total Product is expressed mathematically as:

$$TP\ (Q) = \sum_{i=1}^{Q} MP_{Ii}$$

$$TP\ (Q) = MP_1 + MP_2 + MP_3 \ldots + MP_n$$

Where TP = Total Product, Q = Quantity, MP = Marginal Product and i = 1, 2, 3 … n

Or TP is the product of the total quantity produced by each labour, i.e., AP × L

The total product curve initially shows output rising at an increasing rate (increases quickly), then at a decreasing rate (increases slow down) and eventually declining due to diminishing returns.

Marginal Product (MP)

In the case above, the two new workers produced 150 more loaves of bread. The additional output that a firm can produce as a result changing one more unit of a variable factor (for example, labour) is referred to as marginal product. The marginal product initially increases due to the changes. It eventually decreases due to ***the law of diminishing marginal returns***. In the case of the bakery, production reaches a peak at the maximum number of loaves that can be produced by the three workers. A decrease in marginal product can result because adding any more workers to a small bakery will eventually lead to overcrowding, with each additional baker having less equipment and space to use efficiently.

It is calculated as the change in total product divided by the change in the quantity of the variable input (in this case L, labour).

$$MP= \frac{\Delta TP}{\Delta L}$$

Where, change in Total Product, $\Delta TP = TP_2 - TP_1$ and change in Labour, $\Delta L = L_2 - L_1$

This means that,

$$MP= \frac{\Delta TP}{\Delta L} = \frac{TP_2 - TP_1}{L_2 - L_1}$$

The marginal product curve rises initially, reaches a maximum and then declines, reflecting the stages of increasing and diminishing marginal returns.

Average Product (AP)

This is a measure of the output produced per unit of input (for example, labour) employed. From the case above, the average bread produced by each worker was 66.7 loaves of bread (200/3). It helps us understand how efficiently resources are being used in production.

High AP: Indicates efficient use of inputs, where each unit of input contributes significantly to total output.

Low AP: Suggests that the inputs are not being used as efficiently, and each unit of input contributes less to the total output.

The average product rises when the marginal product is higher than the average product. However, when the marginal product drops below the average product, the average product starts to fall. It is calculated as the total product divided by the variable input (labour)

$$AP= \frac{TP}{L}$$

Where TP= Total Product, and L = Variable input (labour)

The average product curve initially rises, reaches a peak, and then falls as more units of the variable input are added.

Total Factor Productivity (TFP)

Total factor productivity (TFP) is an economic concept that describes the portion of a firm's output that cannot be explained by the number of inputs (capital and labour) used in production. It highlights how technological advancements, efficiencies, and innovations boost output while keeping input quantities constant.

$$Total\ Facor\ Productivity\ (TFP) = \frac{TP}{L + K}$$

Where TP = Total Product, L = Labour and K = Capital

THE STAGES OF PRODUCTION

There are three stages of production. These stages help in understanding how output responds to changes in the number of inputs used (particularly labour).

Consider this table below:

Table 4.1

Workers employed	Total Product (TP)	Marginal Product (MP)	Average Product (AP)
1	6	6	6
2	13	7	6.5
3	22	9	7.3
4	27	5	6.75
5	26	-1	5.2

From the table above, describe the changes in Total Product, Marginal Product and Average Product as the number of workers employed at each level changes.

Stage 1: Increasing Returns to the Variable Input

This occurs when more of a variable input (for example labour) is added to fixed inputs (capital) leading to a greater increase in output. At this stage, the total product increases at an increasing rate (very fast). Marginal and average products also continue to increase. In this stage, production takes place under increasing marginal returns, meaning any additional variable factor employed will contribute **more** to the total output than the previous one. At this stage, the total product (TP) curve is concave upwards, the marginal product (MP) curve is increasing, and the average product (AP) curve is also rising, but more slowly than the MP curve.

Learner, identify and shade in using a colour the increasing returns achieved as the input (number of workers) varies in the table above.

## Stage 2: Decreasing Returns to the Variable Input

In this stage, production is under diminishing marginal returns, meaning each additional input adds less to output than before. The total product continues to rise but at a decreasing rate (slow). The marginal product (MP) starts to decline, though it stays positive, while the average product (AP) decreases after reaching a maximum. The total product (TP) curve is concave downwards, the MP curve is falling, and the AP curve has reached a maximum and is now declining.

Learner, identify and shade in using a colour the decreasing returns achieved as the input (number of workers) varies in the table above.

Stage 3: Negative Returns to the Variable Input

This is a stage where the total product begins to fall as more variable inputs are added. The marginal product (MP) turns negative, meaning that total output will decrease when an additional input is added. The average product (AP) also keeps declining. The total product (TP) curve slopes downward, the MP curve falls below zero and the AP curve continues to slope downward.

Learner, identify and shade in using a colour the negative returns as the input (number of workers) varies in the table above.
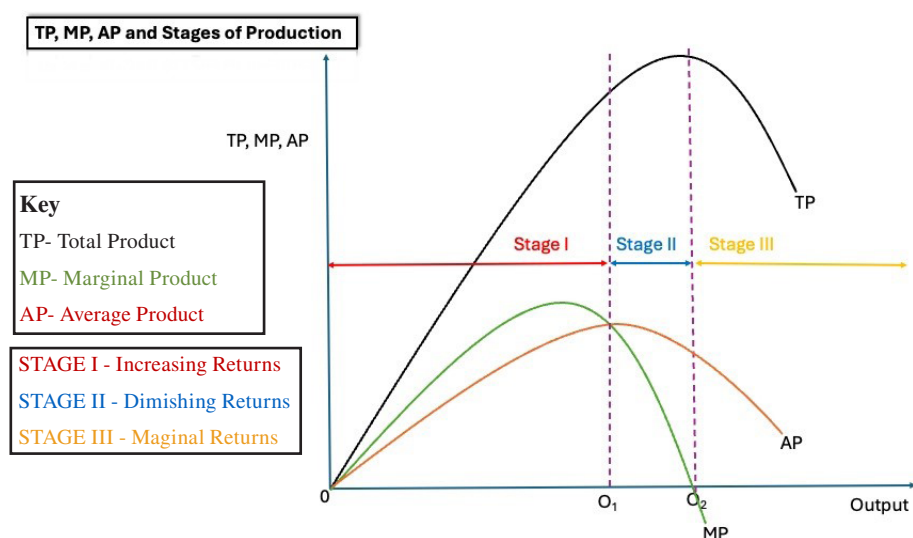
Figure 4.1: *TP, MP, AP and Stages of Production*

Activity 4.2 Calculating TP, AP, MP, TFP, and drawing curves

Do this activity with a friend.

Materials Needed: Notebook, pencil, calculator, and graph paper.

Answer all the questions in your notebook.

Step 1: Examine the table which shows the number of units of labour and the resulting output.

Units of Labour	Total Product (TP)	Marginal Product (MP) MP=$TP_n - TP_{(n-1)}$)	Average Product (AP)AP =TP ÷ Labour
1	10		
2	24		
3	36		
4	44		
5	48		
6	50		

Step 2: Calculating the Total Product, Marginal Product, Average Product, and TFP

1. **Total Product (TP)**: Review the TP values in the table, which show the output produced with each additional unit of labour.

   Question: According to the table, what is the Total Product when 5 units of labour are used?

2. **Marginal Product (MP)**: Calculate MP for all levels of labour used, by finding the difference in TP when each additional unit of labour is added.

   For example, when labour increases from 1 to 2 units, the MP is 24 - 10 = 14.

3. **Average Product (AP)**: Calculate AP for all levels of labour by dividing each TP by the respective units of labour.

4. **Total Factor Productivity (TFP)**: Assume capital input is constant (5).

   a. Calculate TFP for all levels of production.

   b. How does TFP change as labour increases?

Step 3: Drawing the Curves

1. Together with your friend, use the data you have worked out to plot the TP, MP, and AP using graph paper. Each curve should be on the same axes, units of labour on the X-axis and TP, MP, AP on the y-axis.

2. *What trends do you see in the TP, MP, and AP curves as more labour is added?*

Step 4: Show your work to your teacher and also share it with your friends.

THE METHODS OF PRODUCTION

With your teacher organise a visit your school kitchen, workshop or a nearby manufacturing shop such as a carpentry shop. Observe the inputs they use in production. Is the shop using more workers (labour) or machines (capital) in production? There are two main methods of production which are:

1. **Labour-Intensive Production**

    A production situation that relies mainly on human effort rather than machinery to create goods and services is known as Labour-intensive. In this approach, businesses employ a large number of workers to perform various tasks. It is often seen in industries where personal skill, artisanry or customisation is essential.

    Examples:

    a. Weaving colourful Kente cloth in Ghana heavily relies on skilled artisans who spend many hours doing designs.

    b. Producing pottery by hand involves more human effort, as each pot must be shaped, dried and painted carefully.

2. **Capital-Intensive Production**

In Economics, capital refers to the assets and resources that are used to produce goods and services. It does include money, but buildings, machines, infrastructure and skilled labour are also capital. Some industries have big buildings, machinery, technology and equipment to produce goods and services. Many automated manufacturing processes do not have big inputs of labour (workers) This production situation is referred to as **Capital-intensive.** This approach is common in industries where large-scale operations are necessary, such as manufacturing, mining, and energy production.

Examples:

a. Building a big factory to produce textiles and using weaving machines is capital intensive.

b. Oil extraction is capital-intensive since companies need skilled labour, specialised machines and technology to explore and find oil and equipment to drill deep into the ground to get it.

Differences Between Labour-Intensive and Capital-Intensive Production

Table 4.2: Labour-intensive vs Capital-intensive production

Aspect	Labour-Intensive Production	Capital-Intensive Production
Primary Resource	It relies mainly on human labour	It relies on machinery and technology
Initial Investment	It requires lower investment in assets.	It requires higher investment in assets.
Production Flexibility	There is high flexibility to customise products	There is low flexibility to customise products.
Employment	It creates more job opportunities.	It creates fewer job opportunities due to automation.
Cost Structure	There is a high proportion of labour costs.	There is a high proportion of fixed capital costs.

Activity 4.3 Identifying Production Methods

Materials needed: Notebook, pen and pencil.

Instructions:

1. **Introduction**: Identify and explain the two production methods in your notebook.

2. Study each key ASPECT listed in the table below carefully. Using the internet or an Economics text book find out what each ASPECT means in terms of METHOD OF PRODUCTION.

3. **Copy the Table**: Using the results of your research and the 14 characteristics of PRODUCTION printed below the table, place each one in the correct column. Two have been done for you.

Aspect	Capital-Intensive Production	Labour-Intensive Production
Primary Input		
Initial Investment	High investment in capital assets	
Flexibility		
Cost Structure		
Skill Requirements		
Production Scale		
Example Industries		Agriculture, textiles, handicrafts

NB: Characteristics – seven can be linked to capital intensive, seven to labour intensive production

- Skilled labour for operating and maintaining equipment
- A high proportion of fixed capital costs
- High investment in capital assets
- Less flexible, better suited for mass production
- Can vary from low-skilled to highly skilled labour
- Agriculture, textiles, handicrafts
- More adaptable to changes in demand and customisation
- Suitable for large-scale production
- Lower investment in capital assets
- A high proportion of labour costs
- Machinery, equipment, technology
- Suitable for small to medium-scale production
- Automobile manufacturing, oil refining, electronics
- High level of flexibility, changes easily made to meet new circumstances

4. Which method of production do you think is more beneficial for a developing country? Why? Share your findings.

5. Compare your work with a friend and respectfully seek help from your teacher if you have any difficulties.

THE CONCEPT OF COST

Cost

It is the monetary value an individual, group or firm spends in producing goods and services. In Economics, cost can be seen as the expenditure incurred in the course of revenue generation. Cost comes in different forms such as fixed cost (FC), variable (VC), total cost (TC), opportunity cost, sunk cost, explicit cost, implicit cost, time horizons, short-run cost and long-run cost.

Fixed Cost (FC)

Fixed cost is the cost or expenditure that a firm or business incurs irrespective of volume of production. It does not change with the level of output. Expenses paid as rent, salaries of permanent workers or staff, insurance premiums and depreciation (wearing out) of equipment are all examples of fixed costs. Fixed cost is illustrated on a graph by a horizontal line since it does not vary with the output level.

Variable Cost (VC)

Variable cost is the cost that directly varies with the level of output. This cost is incurred as production increases. Cost of labour, cost of raw materials and utility cost directly in the line of production are examples of variable cost. Variable cost curve slopes upwards, indicating that it varies with increasing output.

Total Cost (TC)

It is the total of the fixed cost and the variable cost at any given level of production. The total cost curve slopes upwards starting from the fixed cost line and shows that total cost increases as output increases.

Other Types of Cost in Economics
Opportunity Cost

Opportunity cost is the next best alternative forge in making a decision. It shows the benefits that could have been forgone by choosing a different option.

For example,

- If a student chooses to work instead of going to school, then the opportunity cost of working for money is the school he or she has forgone.

- If an individual chooses to own a car instead of buying a plot of land, then the opportunity cost of owning a car is forgone. Note must be taken that the value of the chosen alternative and the foregone alternative are the same.

- Forgone revenue from diverting resources to a new project

- Cost of delaying a project or decisions.

Sunk Cost

Sunk cost is the cost that has been incurred and cannot be recovered. This cost does not affect future economic decisions. For example, advertising expenses and research and development expenditures incurred already, initial investment in new buildings and projects, cost of buying and leasing new equipment and training cost for new employees.

Explicit Cost

It refers to direct out-of-pocket payments for inputs in the line of production. It is the actual cash payment made to the factors in the line of production. For instance, wages, rent, materials and utility costs.

Implicit Cost

Implicit cost is a non-cash cost that is the opportunity cost of using the resources owned by the company or firm. For instance, the use of company buildings or equipment and the time spent.

Economic Cost

Economic cost refers to the sum of both explicit and implicit cost and it is the total cost of doing one action over the other including out-of-pocket expenses and the opportunity cost (the best alternative forgone)

Time Horizons

It refers to the distinction between long and short runs. It enables one to understand how firms make decisions over different time horizons.

Short-run Cost

The short run is a period in the line of production so short that at least one factor of production is fixed. The fixed factor is capital, for example, machinery and building.

Long run Cost

It is a period so long that all factors of production are variable. In this period all firms can adjust all their inputs including capital so that in the end, there is no fixed capital. The long-run cost allows firms to change their production ability to meet demand. Some examples include advertising and marketing campaigns, training and development, utility costs (electricity, water) for a large facility, equipment maintenance and repair, supply and organization.
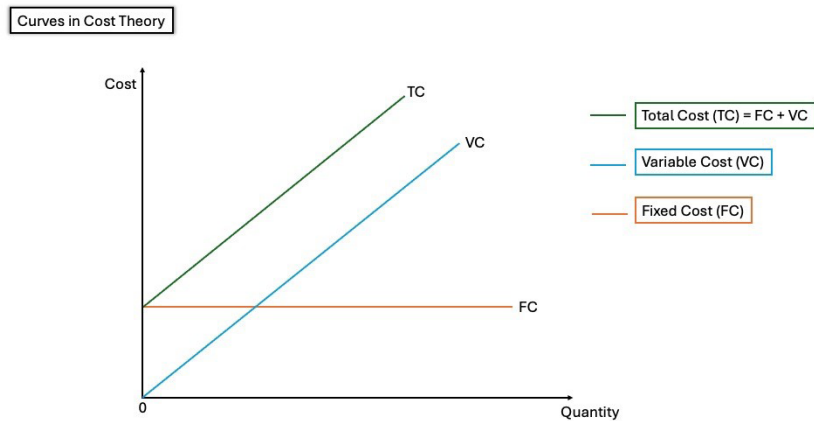
Figure 4.2: Graph showing the relationship between TC, VC and FC

Activity 4.4 Understanding Costs

Materials needed: Paper and pens for calculations

Scenario: **The Orange Stand**

Imagine that you and your friends are running an orange stand at a school fair. You plan to sell 100 oranges.

1. **Cost breakdown**:

   a. Fixed Costs (Costs that do not change):

      i.   Stand rental: 20 cedis

      ii. Equipment (tables and containers): 30 cedis

   b. Variable Costs (Costs that change with production):

      i.   Oranges: 50 cedis (cost for 100 oranges)

      ii. Labour (2 friends helping, 10 cedis each): 20 cedis

2. **Instructions**:

   a. Use the information provided above to calculate the following cost concepts in your notebook:

      i.   Total Fixed Costs (TFC): (Add the totals for stand rental and equipment costs.)

      ii. Total Variable Costs (TVC): (Add the totals of the cost for oranges and labour costs.)

      iii. Total Costs (TC): (Add your fixed costs and variable costs together.)

      iv. Opportunity Cost: (Think about what you are giving up by spending time on the orange stand.)

      v.   Sunk Cost: (Identify any cost element you cannot get back after spending.)

3.   Use your calculation to sketch the cost curves for TC, TFC and TVC. (On the x-axis (cost), choose 1cm to 5 units, and on the y-axis (output), choose 1cm to 20 units).

4.   Share your findings with a friend at school.

CALCULATION OF TOTAL, AVERAGE AND MARGINAL COST

Total Cost (TC)

Total cost is calculated by adding the fixed costs to the variable costs. The total costs are expressed mathematically as:

$$TC = TFC + TVC$$

Where TFC = Total Fixed Cost and TVC = Total Variable Cost.

The total cost curve does not start from zero because of the fixed cost but starts slightly above the origin on the vertical axis and slopes upwards to show that as output increases, the total cost also increases.

Average Fixed Cost (AFC)

Average fixed cost is the amount of money you spend on each fixed input used production process. It is simply the total fixed cost per unit of output produced. The average fixed cost per output becomes smaller as more goods are produced because it is spread over large output. Average fixed cost is calculated by dividing the total fixed cost by the quantity of goods produced. AFC is expressed mathematically as

$$AFC = \frac{TFC}{Q}$$

The AFC curve has a **downward-sloping shape** but never touches the horizontal axis, though it gets closer and closer to it.

Average Variable Cost (AVC)

This is the amount of money spent on each variable input employed in the process of production. It is the variable cost per unit of output produced. It is calculated by dividing the total variable cost by the output of goods produced.

Mathematically, $AVC = \frac{TVC}{Q}$

The AVC falls initially, attains minimum and rises thereafter (it is u-shaped). This is because, at the initial stages of production, firms enjoy increasing marginal returns. After all, addition to labour increases output so the AVC falls. After a certain limit,

diminishing returns sets in where additional output begins to fall and the AVC begins to rise. This is known as the law of diminishing marginal returns.

Average Cost (AC or ATC)

This refers to the total cost per unit of output produced. It is calculated by dividing the total cost by the quantity of the commodity produce. It can also be calculated by adding the average fixed cost (AFC) to the average variable cost (AVC). The formula is

$$AC = \frac{TC}{Q} \quad \text{OR} \quad AC = AFC + AVC$$

The AC curve falls initially due to increasing marginal returns and later rises due to diminishing marginal returns. It is also u-shaped.

Marginal Cost (MC)

Marginal cost refers to the additional cost of producing one more unit of output. It is the additional cost incurred as a result of increasing output by one more unit. It is calculated by dividing the change in total cost by the change in output.

$$MC = \frac{\Delta TC}{\Delta Q}$$
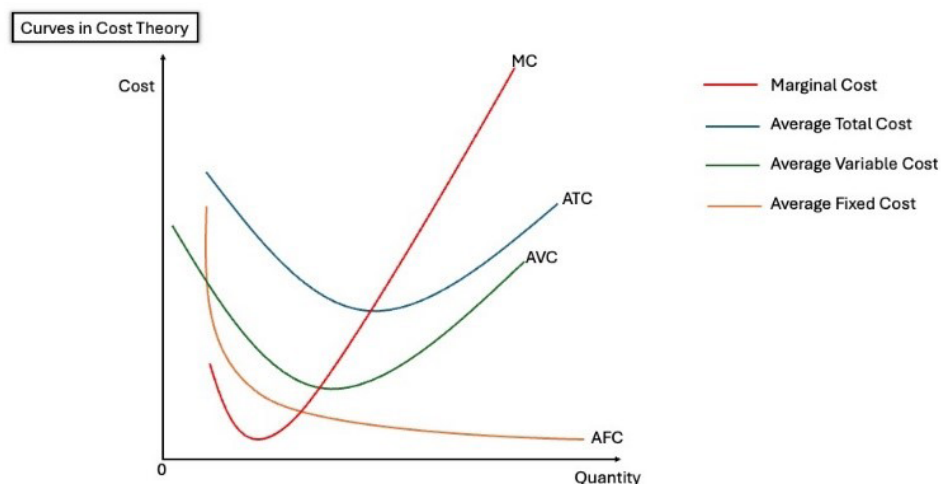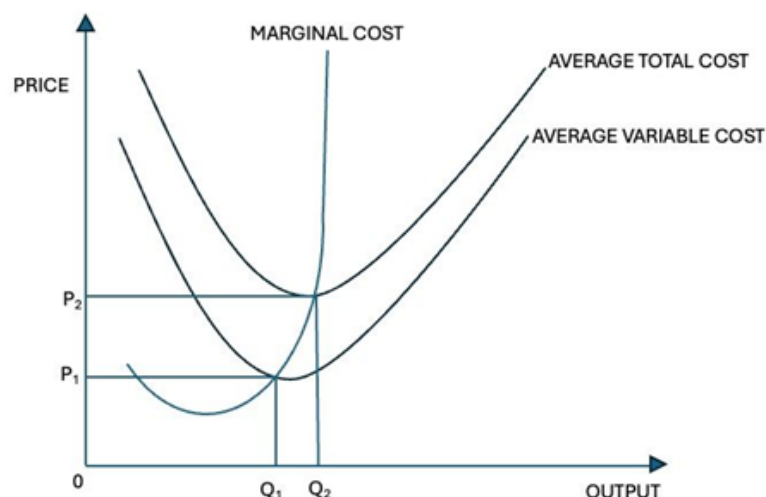
Where, $\Delta TC = TC_1 - TC_0$ and $\Delta Q = Q_1 - Q_0$

Therefore $MC = \frac{\Delta TC}{\Delta Q} = \frac{TC_1 - TC_0}{Q_1 - Q_0}$

OR $\quad MC = \frac{\Delta TC}{\Delta Q}$

Where, $\Delta TVC = TVC_2 - TVC_1,$ $\quad \Delta Q = Q_2 - Q_1$

The MC curve is also U-shaped and meets the AVC and AC curves at the minimum points of the AC and AVC curves.

Figure 4.3: *Graphs showing the relationship between marginal and average costs*

Example calculations for Total Costs, Average Variable Costs Average Total Costs and Marginal Costs

Imagine a small juice stand run by a lady called Ama. She sells 200 cups of fresh pineapple juice per day and therefore incurred the following expenses:

Rent for the stand: GH₵ 100

Cost of pineapples per month: GHS 300

Workers' salary: GH₵ 200

An increase in demand for the fruit juice compelled the lady to increase the quantity to 210 and as a result her total cost increased by GH₵ 20.

The total cost will be:

TC = Fixed Costs (Rent) + Variable Costs (pineapple + Salary)

TC = 100 + 300 + 200 = GH₵ 600

$AVC = \dfrac{300+200}{200} = $ GH₵ 2.50 per cup

$AFC = \dfrac{100}{200} = $ GH₵ 0.50 per cup

$ATC = \dfrac{600}{200} = $ GH₵ 3.00 per cup

$MC = \dfrac{620-600}{210-200} = $ GH₵ 2.00 per cup

Sample Case Study

The school matron cooks rice water every Monday as breakfast. She uses 10 electric stoves, 15 pots, 10 bags of rice, 3 bags of sugar, 200 canteens of ideal milk and 20 cooks to prepare breakfast every Monday when school is in session. If she uses 20 gallons of water to prepare the rice water:

1. Identify the Fixed Cost and Variable Cost items for preparing rice water every Monday

2. Explain fixed, variable and total costs using the case study.

3. Given that the 10 electric stoves cost 10,000 cedis, the 15 pots cost 1500 cedis, the 10 bags of rice cost 7000 cedis, the 3 bags of sugar cost 1200 cedis, the 200 canteens of ideal milk cost 12,000, the 20 cooks take a wage of 150 cedis per person for cooking breakfast on Mondays and the 20 gallons of water cost 100 cedis, sketch the FC, VC and TC curves.

Activity 4.5 Calculating TC, MC, ATC, TFC, TVC, AVC, AFC using formulae

Do this activity with a friend.

Materials needed: Notebook, Pen, Pencil, Calculator

Instructions

Analyse the Cost table below carefully and use the information to answer the questions that follow.

Quantity	TFC	TVC	TC	AFC	AVC	MC	ATC
0	2000	0	2000	-	-	-	-
1	2000	200	2200				
2	2000	380	X				
3	2000	X	2540				
4	2000	680	X				
5	2000	800	2800				
6	2000	900	2900				
7	2000	X	2980				
8	2000	1040	3040				
9	2000	X	3080				
10	2000	1120	X				

1. Calculate TVC when quantity is 3, 7 and 9

   Quote the formula for TVC. Insert the right values into the formula. Simplify to arrive at your answer.

2. Calculate TC when the quantity is 2, 4 and 10.

   Quote the formula for TC. Insert the right values into the formula. Simplify to arrive at your answer.

3. Estimate the values for AFC, AVC, MC and ATC for all quantities.

   Quote the formula for AFC, AVC, MC and ATC respectively and follow the steps of inserting the right values into the formula. Simplify to arrive at your answer.

4. Explain why at Q = 0, TVC is 0 and AFC, AVC, MC and ATC are –

5. Compare your findings with your friend. Be respectful, polite and tolerance towards your friends.

Activity 4.6 Sketching TC, MC, ATC, TFC, TVC, AVC, AFC

1. Use your completed table in activity 4.5 to sketch TC, TFC, TVC on one graph sheet and MC, ATC, AVC, AFC on another graph sheet.

2. Use MS PowerPoint to sketch the curves for presentation.

3. Present your findings to your friends in class.

4. Accept and respect the findings of your friends and make constructive criticism.

THE CONCEPT OF REVENUE

Every day, many people sell items at shops, supermarkets and marketplaces to customers in return for money. *Learner, what is the money received from these transactions called?*

The money received from selling goods or services by a business is called revenue. Revenue is one of the most important concepts in Economics because it shows how well a company is doing financially. It is determined by multiplying the price of the goods by the number of units sold (Revenue= Price × Units sold)

Types of revenue

1. **Operating revenue** is the money a business makes from its main activities. For example, if a bakery sells bread and cakes, the money it receives from sales is called operating revenue.

2. **Non-operating revenue** is money that a business earns from activities that are not its main focus. This includes interest from savings accounts or money made from selling old equipment.

Why is Revenue Important?

1. Revenue helps businesses to **grow**. If a company earns more money, it can invest in new products, hire more workers or expand to new locations.

2. Revenue can show how well an entire industry or **economy is performing**. High revenue for a business can be a sign of good performance.

3. Revenue is used to calculate **profit**.

4. Revenue helps businesses to make important decisions about **pricing and production**.

Revenue versus Profit

Aspect	Revenue	Profit
Definition	The total money received from sales.	The money that is left after all costs are paid.
Calculation	Calculated by multiplying the price by the quantity sold.	Calculated by subtracting costs from revenue.
Importance	It shows how much a business sell.	It shows how much a business makes after expenses.

Example of how revenue is calculated

James Fast-Food sells fried rice and jollof rice. James Fast-Food sells 70 packs of fried rice at Gh¢ 18 and 60 packs of jollof rice at GH¢ 15 a week.

The revenue received by James Fast-Food for one week from selling fried rice is Gh¢ 1260 (70 × 18) and that of jollof rice is Gh¢ 900 (60 × 15).

You should recognise that in this example the total revenue James makes by selling his two products is not his profit.

Activity 4.7 Understanding Revenue Theory

Material needed: Notebook, Pen, Pencil

Instructions:

1. **Choose a product**

   a. Decide on one product you will focus on for this task (e.g., a popular snack, drink, or any item sold at the school canteen or nearby shop).

   b. Write down the name of the product.

2. **Visit the school Canteen or Shop**

   a. Go to the school canteen, a nearby shop, or a market stall where this product is sold.

   b. Politely ask for permission to collect information on the product.

3. **Collect Data on Price and Quantity**

   a. Ask the seller or observe: Find out the price of a single unit of the product. Write down this price.

   b. Check or ask about quantity: Find out how many units of this product are available for sale. If you are not sure, ask the seller or make a reasonable estimate.

   c. Record this information in a simple table like this:

Product name	Price per unit (Cedis)	Quantity available for sale (units)
E.g., Fanta	5.00 cedis	56 bottles

4. **Calculating Revenue**: Use the data you have collected to calculate the potential revenue if all the items are sold.

   a. Quote the formula for Total Revenue.

   b. Insert the right values into the formula

   c. Work out the equation to arrive at your answer.

5. **Conclusion**: Based on your findings, explain revenue and state any two ways in which the knowledge of revenue can help you start your own business.

Calculating Total, Average and Marginal Revenue

Serwah is a business lady living in Kumasi, Ghana. She sets up a local drink (sobolo) stand outside her house during the hot season. She sells her 'Sobolo' for GH₵ 3 per plastic bottle. In three days and made the following sales:

Day 1: 10 bottles

Day 2: 15 bottles

Day 3: 20 bottles.

1. How much revenue will Serwah receive after the three days' sales?
2. How much revenue will Serwah receive if she sells one bottle of 'Sobolo' on any day?
3. How much additional revenue will Serwah receive if she sells one more bottle of 'Sobolo' on any day?

Total Revenue (TR)

The total money a firm receives from selling a given number of commodities is known as **Total Revenue**. From the scenario above, Serwah's total revenue for the three days was GH₵ 135 (45 bottles × GH₵ 3). It is calculated by multiplying the price of the goods or services by the quantity sold. That is:

TR= Price × Quantity Sold or

$$TR\ (Q) = \sum_{i=1}^{Q} MR_{Ii}$$

$$TR\ (Q) = \sum_{i=1}^{Q} MR_{Ii} \qquad TR\ (Q) = MR_1 + MR_2 + MR_3 \ldots + MR_n$$

Where TR = Total Revenue, Q = Quantity, MR = Marginal Revenue and i = 1, 2, 3 … n

Total Revenue shows how much money a business makes and helps us understand how big a business is. It can be viewed as the sum of all marginal revenues (MR) over the quantity of output produced.

Average Revenue (AR)

Average Revenue is the income received from selling one unit of a commodity. From the above scenario, Serwah's average revenue received was GH₵ 3 (135/45). It is derived by dividing the total revenue by the quantity sold. It is expressed mathematically as:

$$AR = \frac{TR}{Q}$$

Where TR = Total Revenue, and Q = Quantity

Average Revenue helps businesses to decide how to price their products and shows how much money they make for each item sold.

Marginal Revenue (MR)

The added revenue that a firm receives when it sells one more unit of a commodity is known as **Marginal Revenue**. In the scenario above, Serwah's added revenue was GH₵3 which is equal to the **price** of the commodity. It is calculated as the change in total revenue resulting from the change in quantity sold. That is:

$$MR= \frac{\Delta TR}{\Delta Q}$$

Where $\Delta TR= TR_1 - TR_0$ and $\Delta Q= Q_1 - Q_0$

This implies that, $MR= \frac{\Delta TR}{\Delta Q} = \frac{TR_1 - TR_0}{Q_1 - Q_0}$

Marginal Revenue helps businesses to decide how much to produce. Firms usually make more items if the additional money from selling one more is greater than the additional cost to make it.

Activity 4.8 Calculating TR, AR and MR

Materials needed: Notebook, Pen, Calculator

The following table shows different quantities of mangoes sold at different prices. Your task is to calculate TR, AR and MR. Follow the instructions below the table.

Quantity produced (or sold) (Q) (Mangoes)	Price per unit (P)	Total Revenue (TR) $TR= P \times Q$	Average Revenue (AR) $AR= \frac{TR}{Q}$	Marginal Revenue (MR) $MR= \frac{TR_1 - TR_0}{Q_1 - Q_0}$
2	10			
4	8			
6	6			
8	4			
10	2			

Instruction

1. **From the table above**:

    a. Calculate the TR for all quantity levels

   b. Calculate the AR for all quantity levels

    c. Calculate the MR for all quantity levels

2. **For each calculation (1a to c) above**:

    a. Quote the formula for the concept.

    b. Insert the right values into the formula.

    c. Calculate to arrive at your answer.

3. Explain why there is no MR for the first line in the table.

4. Show your work to a friend and compare your answers.

5. Politely seek help from your teacher if you face any challenges.

6. Compare your findings your friends in class.

TOTAL, AVERAGE, AND MARGINAL REVENUE CURVES

Total Revenue Curve

The **total revenue (TR) curve** shows the relationship between the total revenue a seller receives and the quantity of goods it sells. It is a graph that illustrates how a business's revenue changes as it sells more units of its product. On the graph, the total revenue is represented on Y-axis with the quantity produced on the X-axis.

The total revenue curve generally slopes upwards at first, reach its maximum point and start to slope downward.
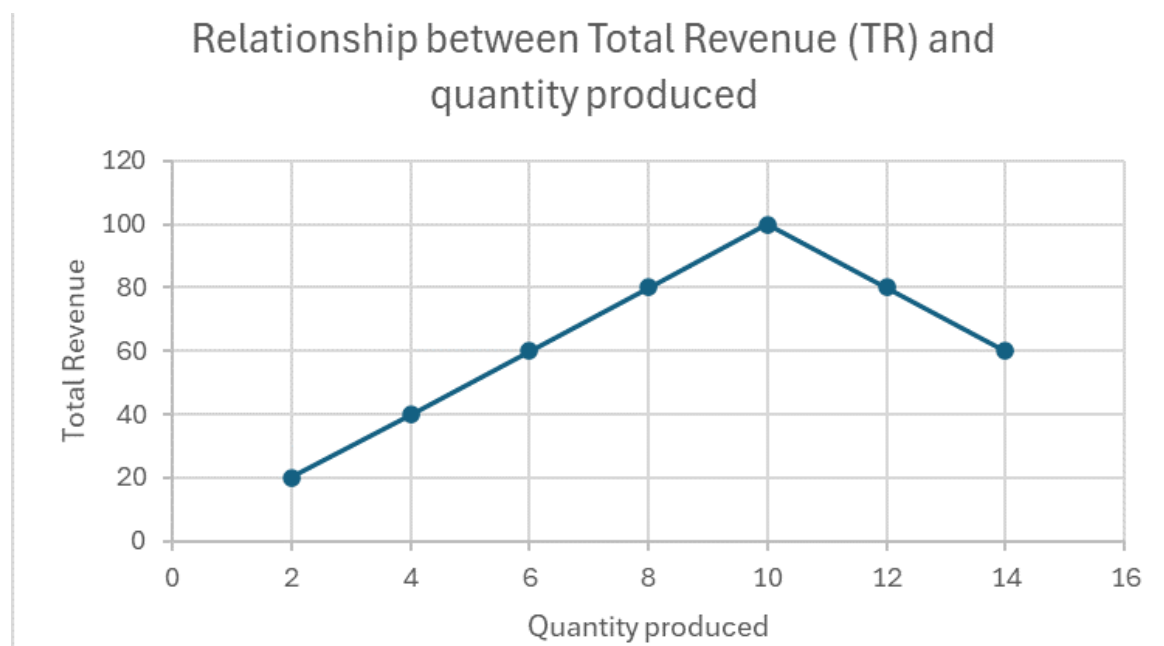
Figure 4.4: Showing the relationship between Total Revenue and quantity produced
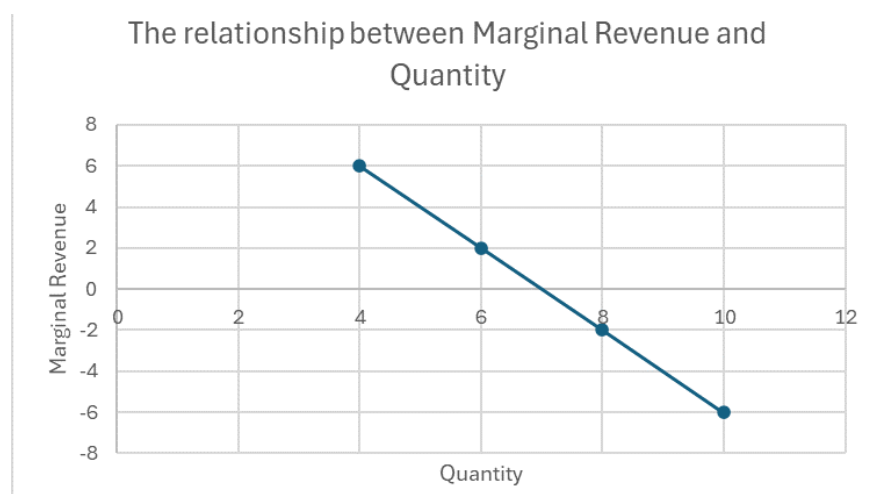
Average Revenue Curve

The average revenue (AR) curve represents the relationship between the price per unit (or revenue per unit) and the quantity sold. AR curve is also known as the demand curve for the firm. In a perfect competitive market, the AR curve is a horizontal line but in an imperfect market (like monopolies), AR curve slopes downwards showing that prices must reduce as more units of the commodity are sold. In drawing the Average Revenue curve, the average revenue is represented on Y-axis while the units of output produced is represented on the X-axis.
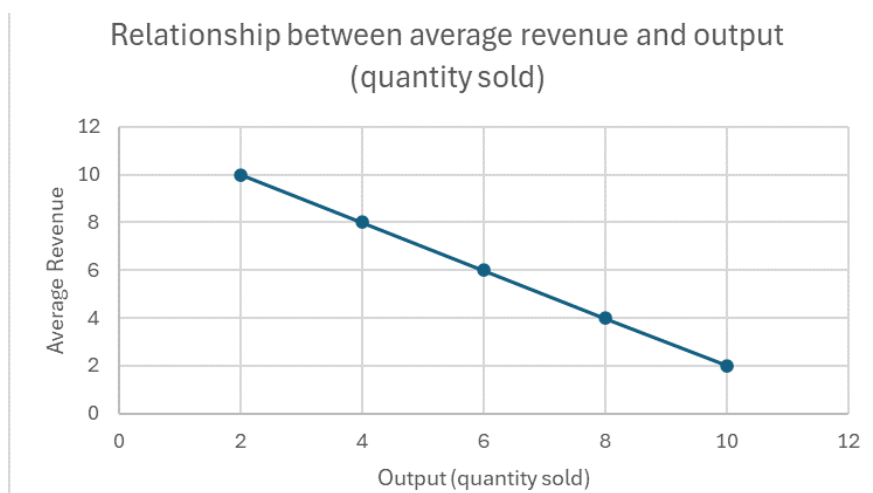
Figure 4.5: Showing relationship between Average Revenue and Output

Marginal Revenue Curve

The marginal revenue (MR) curve shows the relationship between the marginal revenue and the units of output sold. The slope of the MR curve varies depending on the type of market. In the Perfect competitive market, the MR curve is horizontal line and equal to the price but in the imperfect market the MR curve has a downward slope and lies below the average revenue (AR) or demand curve. On the graph, the MR is represented on the Y-axis while the units of output produced/sold are represented on the X-axis.

Figure 4.6: Showing the Relationship between Marginal Revenue and Quantity

The relationship between the Total revenue, Average revenue and marginal revenue curves

In a perfectly competitive market, AR = MR = P (price), and the AR curve is a horizontal line.

In an imperfect market (e.g., monopoly), the AR curve slopes downwards, and the MR curve lies below the AR curve. This is because, in order to sell more units, the firm must lower the price (P), which reduces the revenue gained from the earlier units sold. This is shown in the infographic below.
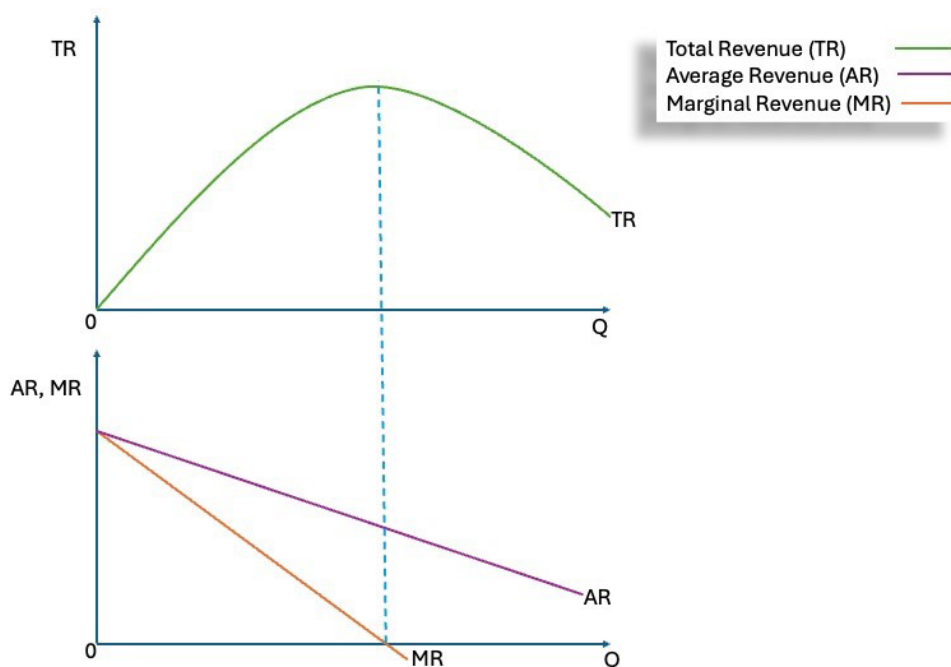
Figure 4.7: *The relationship between Total Revenue, Average Revenue and Marginal Revenue*

Activity 4.9 Plotting TR, AR and MR

1. Use your completed table in activity 4.8 to plot TR, AR and MR curves on the same sheet of graph sheet or using MS Excel.

2. Compare your findings with your friends in class.

EXTENDED READING

- https://www.investopedia.com/ask/answers/032615/what-concept-utility-microeconomics.asp

- https://youtu.be/WFykae1NIPY?si=DKdO_qMgzfYRhDPT

- https://www.britannica.com/money/cost

- https://www.investopedia.com/terms/s/shortrun.asp

- https://www.investopedia.com/terms/m/marginal-revenue-mr.asp

REVIEW QUESTIONS

1. Abena Manufacturing Shop is a local business in a community in Ghana that produces furniture, such as chairs and tables. The shop has been in operation for three years and employs ten workers from the local area.

   Questions

   a. State the two time periods in the production of furniture in Abena's shop.

   b. Explain the two time periods in terms of the factors of production for Abena's shop.

2. KPK is a manufacturing company in Kasoa that produces bottled water. The following table shows the total, marginal and average costs of producing bottled water by the business:

Labour	Total Product (TP)	Marginal Product (MP)	Average Product (AP)
1	100	100	G
2	250	D	125
3	A	200	150
4	600	150	H
5	B	E	140
6	750	50	I
7	C	0	J
8	700	F	87.5

   Questions

   a. Find the Total Product values for A, B and C

   b. Estimate the Marginal Product for D, E and F and Average Product for G, H, I and J.

   c. Assuming a fixed capital of 100, estimate the Total Factor Productivity (TFP) for levels 1, 2, 5, 6 and 8 of labour employed.

   d. Use the data to sketch the TP, MP and AP curves on a graph sheet (alternatively, MS Excel).

   e. Indicate the stages of production in the curve.

   f. Explain the relationship between the TP, MP and AP curves.

3. In Ghana, agriculture is a vital part of the economy, employing a significant portion of the population. There are various methods of production used in the agricultural sector. In the olden days, most farmers hired many people. Some farmers married many wives and gave birth to many children so as to get more people to work on the farm. Nowadays, most farmers do not rely on human labour. They use more of agricultural equipment.

Research into methods of production in Ghanaian farming using the internet and books from the library. Make notes and then answer the following questions.

Questions

a. State the two methods of production of goods.

b. Discuss capital-intensive and labour-intensive methods of production of agricultural products.

c. Differentiate between capital-intensive and labour-intensive methods of production of goods using real-world scenarios.

4. Kofi runs a small bakery at Accra that specialises in making fresh bread, pastries and cakes. In order to produce 500 loaves of bread, Kofi incurred the following costs:

a. Rent for the Bakery: Kofi pays a monthly rent of Gh¢ 1,000 for the space where he operates.

b. Salaries of Permanent Staff: He has two full-time bakers whose combined monthly salaries total Gh¢ 800.

c. Depreciation on Equipment: Kofi's oven and other baking equipment depreciated at Gh¢ 200 per month.

d. Raw Ingredients: Flour, sugar, and other ingredients used for baking, costing approximately Gh¢ 0.50 per loaf of bread.

e. Utilities: Electricity and water bills that vary with production levels, averaging Gh¢ 300 monthly, but can increase with more baking.

f. Packaging Supplies: Costs for bags is approximately Gh¢ 0.50 per loaf of bread.

Questions

a. Identify three items each that are components of FC and VC.

b. Determine the total FC, total VC, and TC in Kofi's bakery business.

c. Sketch the FC, VC, and TC curves for Kofi's bakery business.

5. The table below represents the cost structure of Mubarak Enterprise, an Agro Inputs Firm located at Sunyani. Use the information in the table to answer the questions that follow.

Quantity	Total Fixed Cost (TFC) (Gh¢)	Total Variable Cost (TVC) (Gh¢)	Total Cost (TC) (Gh¢)	Average Fixed Cost (AFC) (Gh¢)	Average Variable Cost (AVC) (Gh¢)	Marginal Cost (MC) (Gh¢)	Average Total Cost (ATC) (Gh¢)
0	500	0	500	-	-	-	-
1	500	200	700				
2	500	M	820				
3	500	400	P				
4	500	440	940				
5	500	N	970				
6	500	520	Q				
7	500	610	1110				
8	500	730	1230				
9	500	890	R				
10	500	O	1580				

Questions

a. Calculate the TVC of Mubarak Enterprise when quantity 2, 5 and 10 are produced.

b. Calculate the TC of the enterprise when the quantity is 3, 6 and 9.

c. Find the values for AFC, AVC, MC and ATC for all quantities for the enterprise.

d. Explain why at quantity (Q) 0, total variable cost (TVC) is 0.

e. Analyse the relationship between the TC, TVC and TFC costs of Mubarak Enterprise.

6.

a. Define revenue in your own words.

b. Explain the concept of revenue using Nana's fresh juice company.

c. Differentiate between revenue and profit of Nana's fresh juice company.

7. Nana owns a fresh juice company in Takoradi, producing and selling various fruit juices. The business has been operational for two years and primarily sells to local markets, restaurants, and customers directly. At a price of Gh¢ 6 per bottle, the company sold 2,000 bottles in a month. During the month, the company incurred a total cost of Gh¢ 9,600.

Questions

a. Copy and complete the table below by **calculating the total revenue, average revenue and marginal revenue** for each quantity sold. The table shows that the price falls with increasing quantity. Note that it is normal for sellers to reduce the price per unit for buyers wanting to buy large quantities.

Quantity	Price per unit (Gh¢)	Total Revenue (TR) (Gh¢)	Average Revenue (AR)(Gh¢)	Marginal Revenue (MR) (Gh¢)
10	6			
20	5			
30	4			
40	3			
50	2			

b. Using graph paper or a software package like Microsoft Excel draw the curves for total, average and marginal revenue on the same axes. Revenue should be scaled on the y-axis, quantity on the x-axis.

c. Explain why you have not included an entry in the first row for marginal revenue

d. Explain the relationship between Nana's Fresh Juice Company's TR curve, AR and MR curves in terms of business profitability.

8. Case Study: Understanding Costs in a Small Business

Imagine you are the owner of a small bakery called "Adinkra Bakery". Your bakery specializes in cakes and cookies. As the owner, the following are the various costs associated with running the bakery.

- Rent for the bakery space: Gh¢1,000 per month

- Salaries for two employees: Gh¢2,000 per month each

- Insurance: Gh¢500 per month

- Equipment lease: Gh¢300 per month

- Utilities (fixed part): Gh¢200 per month

- Ingredients for cupcakes and cookies: Gh¢1 per unit

- Packaging: Gh¢0.20 per unit

- Utilities (variable part): Gh¢0.05 per unit

- Labour (overtime for peak hours): Gh¢0.50 per unit

- In a given month, the bakery produces 1,000 units.

Questions

a. Calculate various types of costs, including Total Fixed Costs (TFC), Total Variable Costs (TVC), and Total Costs (TC).

b. Calculate Average Fixed Costs (AFC), Average Variable Costs (AVC), Marginal Costs (MC), and Average Total Costs (ATC).

c. Use the calculations to sketch the various cost curves

d. Explain the relationships between the cost curves

Multiple Choice Questions

1. What does Total Product (TP) refer to in production?

A. The total cost incurred in production

B. The total number of workers employed

C. The total output produced by a firm

D. The total revenue generated

2. Which of the following formulas is used to calculate Marginal Product (MP)?

A. MP = AP / TP

B. MP = Change in TP / Change in Inputs

C. MP = Total Revenue / Total Cost

D. MP = TP / Number of Inputs

3. At which stage of production does Marginal Product begin to decline?

A. Stage I

B. Stage II

C. Stage III

D. All stages

4. What is the concept of cost concerning production?

A. Market share

B. Profit maximisation

C. Resources used in the production process

D. Total revenue generated

5. Which of the following equations best describes how Average Cost (AC) is calculated?

A. AC = Total Cost / Total Output

B. AC = Total Fixed Cost / Total Output

C. AC = Total Revenue / Total Cost

D. AC = Total Variable Cost / Total Output

6. What phenomena does Total Revenue (TR) represent?

   A. The total assets owned by a company

   B. The total cost incurred in production

   C. The total income received from sales

   D. The total profit made by a firm

7. To find Marginal Revenue (MR), which of the following formula is used?

   A. MR = AP / TP

   B. MR = Change in Quantity Sold / Change in TR

   C. MR = Change in TR / Change in Quantity Sold

   D. MR = TR / Total Cost

8. Which of the following curves typically slopes downward?

   A. Average Product curve

   B. Average Revenue curve

   C. Marginal Product curve

   D. Total Product curve

9. In the context of revenue curves, what does the Average Revenue (AR) curve represent?

   A. The cost per unit sold

   B. The profit per unit sold

   C. The revenue from selling an additional unit

   D. The total revenue divided by the total output

FIRMS 'INNOVATIVE DECISION MAKING
SUPPLY OF GOODS AND SERVICES

INTRODUCTION

Learner, welcome to Section 5. In this section you will explore how suppliers and sellers behave in the market. Every rational seller aims to make a profit during selling or after selling their goods in the market. People supplying a service like taxi drivers or electricians also want to make profits at the end of the day. The content of this section is based on the factors controlling supply and difference between **changes in quantity supplied** and **changes in supply**. When economists study **changes in the quantity** supplied the only factor considered is **price**. When **changes in supply** are studied **all other factors** can be considered. **Supply** plays a vital role in how goods and services are made available in markets across Ghana and the world at large. For example, if the price of raw materials rises for iron rod production, it will become more expensive to supply them, thereby affecting its overall market supply.

KEY IDEAS

- A **change in quantity supplied** refers to **a movement along the supply curve** due to a **change in the price** of the good. Conversely, a **change in supply** refers to a **shift of the entire supply curve** caused by **factors such as** changes in production costs or technological advancements.

- A **shift in the supply curve** means that at the **same price**, the **quantity supplied changes**, indicating a change in supply **due to external factors**. A **change in quantity supplied** means that **only the quantity supplied changes as the price changes, not the entire supply curve**.

- All other things being equal, an **increase in the price** of a commodity leads to an **increase in its supply**, as higher prices provide more incentive for producers to produce and sell more to maximize profits.

- The **supply of a commodity** can **be influenced by the price** of the good, **production costs, technology, government policies, and the availability of resources**. These factors determine how much producers are willing and able to supply.

PRICE AS A FACTOR THAT AFFECTS THE SUPPLY OF A COMMODITY AND CHANGE IN QUANTITY SUPPLIED
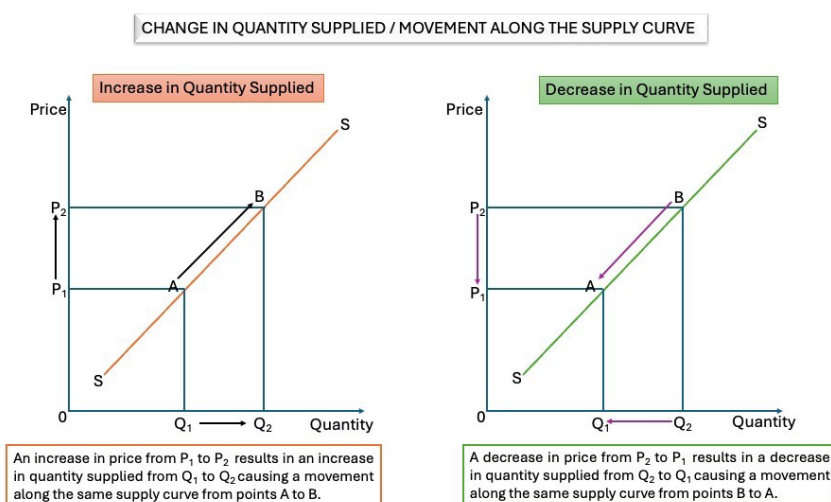
Supply refers to the **total amount of a specific good or service** that is **available to consumers at a given price over a specific period**. It represents how much the market can offer for that good or service.

The relationship between the price of a good or a commodity or service and the quantity supplied is shown clearly by the supply curve or graph. A typical supply curve slopes upwards indicating that suppliers or producers are motivated to supply more at higher prices than at lower prices which shows a direct and positive relationship between price and quantity supplied. The supply curve is a graph of prices on the vertical axis against the quantities supplied on the horizontal axis as shown in *Figure 5.2*.

PRICE	QUANTITY SUPPLIED
10	2
20	5
30	8
40	12

Figure 5.1: Sample supply schedule

The arrows in *Figure 5.1* show that when the price increases, the quantity supplied also increases, and conversely, when the price falls, the quantity supplied decreases.

CHANGE IN QUANTITY SUPPLIED / MOVEMENT ALONG THE SUPPLY CURVE

Increase in Quantity Supplied

An increase in price from P_1 to P_2 results in an increase in quantity supplied from Q_1 to Q_2 causing a movement along the same supply curve from points A to B.

Decrease in Quantity Supplied

A decrease in price from P_2 to P_1 results in a decrease in quantity supplied from Q_2 to Q_1 causing a movement along the same supply curve from points B to A.

Figure 5.2: Graphs showing change in quantity supplied versus price.

From the two graphs above, a change in quantity supplied can be seen as a movement along the same supply curve as a result of changes in the price of the good or service. So, any increase in price from P1 to P2 will lead to an increase in quantities supplied

from Q1 to Q2 which also leads to movement along the curve from A to B. The reverse of this is also true, a decrease in price from P2 to P1 will lead to a fall in quantity supplied from Q2 to Q1.

The table and two graphs show how the law of supply works. A price increase motivates producers to supply more of a product or service to make higher profits. As the price falls, the supplier is not motivated to supply more because this means lower profit.

Activity 5.1 The Relationship Between Price and Quantity Supplied

Instructions

This activity is designed to help you understand how the price of a commodity affects the quantity supplied by a rational producer. A rational producer or supplier is someone who makes sales decisions based on the available information to maximise their profit. In this case, there is only one piece of information – price.

1. Choose and agree on a Ghanaian commodity of your choice that sellers regularly sell in the market (e.g., plantain, maize, or fresh tomatoes).

2. Develop a simple questionnaire to collect the following data over five different days:

    a. The price of the commodity each day,

    b. The quantity of the commodity sold each day.

    c. The date of each visit (make sure to go to the market or canteen on different days of the week).

3. Use the data to create a table with three columns and six rows.

    Suggested table to be drawn

Date	Price (GH₵)	Quantity Sold
Day 1		
Day 2		
Day 3		
Day 4		
Day 5		

4. Go to the market or canteen on five different days and collect the price and quantity data.

5. Observe and note any differences in price or quantity each day.

6. Review the table you have completed and answer the following questions:

a. How does the price of the commodity affect the quantity supplied?

b. Does the quantity supplied increase or decrease as the price changes? Why?

c. On graph paper draw supply curve. Remember that price is always the Y-axis and quantity supplied is the X-axis.

d. Explain how the data shows the relationship between price and quantity supplied and what your graph illustrates.

7. **Organise your findings in a PowerPoint presentation. Include**:

a. A title slide with the names of your friend and you and the commodity you studied.

b. A slide showing the data you collected.

c. A slide with the graph showing the change in quantity supplied.

d. A slide explaining your graph and how the price affects the quantity supplied.

8. **Present your findings with others who have done this activity.**

Note

Be respectful, tolerant and honest when completing the table and answering the questions.

OTHER FACTORS THAT AFFECT THE SUPPLY OF A COMMODITY AND CHANGE IN SUPPLY

In this part of section 5 **price remains the same** and **quantity supplied changes** as a result of other factors. These factors are:

Production costs

Supply will be affected when there is a change in the cost of factors or inputs like raw materials and labour. A fall in the costs of production will lead to an increase production as the producer can make more for less cost – quantity supplied increases.

An increase in the costs of production may make it unprofitable to produce so goods so production falls – quantity supplied decreases.

Advance in Technology

Supply can be increased if a faster or better production process or new machine is used. An improvement in the level of technology may improve the speed of the production process. New technology like faster or more accurate machines – increase in the quantity supplied.

Number of suppliers

When there is an increase in the number of suppliers of a good or service in the market, there is usually a general increase in the supply of such good or service. However, when the number of suppliers decreases, it leads to a fall in the supply of the good or service.

1. More suppliers producing the same goods or services leads to an increase in the quantity supplied.

2. Fewer suppliers producing a good lead to a decrease in the quantity supplied.
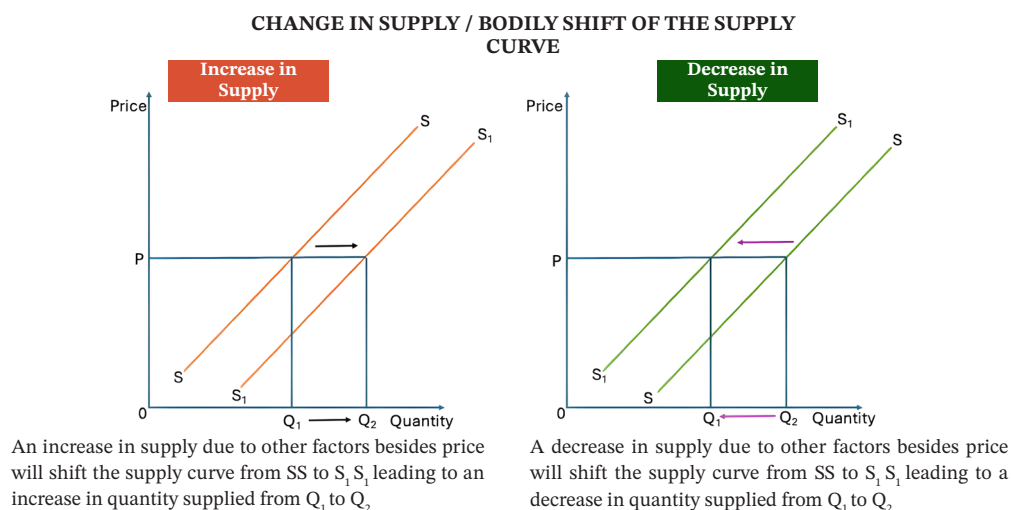
Government Policies

Governments often make policies which affect the market system including the production/supply of goods and services. The introduction of new taxes, money subsidies and new laws to regulate market activities influence supply. A subsidy is money paid by the government to a firm to make the cost of goods produced less expensive for the public using them. For example, fuel for transport is often subsidised in Ghana to keep transportation and energy costs lower for consumers. Subsidies increase the quantity supplied because it is more profitable for producers to increase their production. Ghana also has subsidies for products grown for farmers. Rice, maize, and other basic foods may receive subsidies to ensure food security and affordability.

Tax increases or goods cause a decrease in the quantity supplied because it increases the cost of production and reduces the profitability of a good. The reverse is true as fall in taxes makes goods more profitable, so producers supply more.

So, you now know that the supply of a commodity can be influenced by factors other than price. In this case supply is affected not as a result of a price but by changes in any of these other factors. This is known as a **change in supply.** Change in supply causes a movement of the supply curve to the left or right.

1. An increase in the quantity supplied causes the supply curve to move to the right.

2. A decrease in the quantity supplied causes the supply curve to move to the left.

This is illustrated in the graphs presented in *Figure 5.3*.

An increase in supply due to other factors besides price will shift the supply curve from SS to S_1S_1 leading to an increase in quantity supplied from Q_1 to Q_2

A decrease in supply due to other factors besides price will shift the supply curve from SS to S_1S_1 leading to a decrease in quantity supplied from Q_1 to Q_2

Figure 5.3: Graphs illustrating the increase and decrease in quantity supplied while the price remains constant (indicating a shift in the supply curve)

Activity 5.2 Other Factors Affecting the Supply of Commodities

Instructions

This activity will help you understand the different factors (**other than price**) that can influence the supply of goods and services in the market.

1. Choose a local food, such as kenkey, waakye, cooked rice, gobe (gari and beans), or fish.

2. Develop questions to collect information from sellers about factors, other than price, which might affect the supply of the commodity. Questions you might ask could be like these:

    a. What factors influence the amount of this commodity you can supply each day?

    b. Does the availability of raw materials (e.g., fish, rice, beans) affect your ability to supply?

    c. Do weather conditions (e.g., rain or dry season) impact how much of this commodity you can produce or sell?

    d. How does the cost of labour affect your supply?

An example is shown below. You will have to give each seller one of these tables to fill in. Alternatively, you could fill it out yourself based on the answers they give.

Question	Answer
What is the main thing (apart from price) affecting the quantity you supply of this commodity?	
How does the availability of raw materials influence the quantity you supply?	
How does weather influence the quantity you supply?	
How does the number of suppliers affect the quantity you supply?	
How does government regulation like taxes or subsidies affect your supply?	

3. Visit the local market or school canteen to interview as many sellers as you possibly can who supply the commodity you have chosen and collect their responses to get different views.

4. When you have filled out all of your questionnaires you need to do some analysis. *Remember you are finding out how factors other than price affect the supply of your chosen commodity.* Try to answer these questions in as

much detail as possible. Add points of your own if they provide important information for you.

   a. look at each question in turn and try to find similarities and differences. For example, if you have chosen kenkey, does the maize harvest affect the supply? Is this influenced by the weather? Do farmers supply less maize when the harvest is poor?

   b. Identify common themes and patterns in the responses.

   c. Compare the impacts of different factors (e.g., raw materials vs. labour costs).

   d. Identify for which questions suppliers gave the most information.

   e. Review how your data collection went. Were there any problems? Did all suppliers give a response? What would you have done differently?

5. Summarise your findings in a written report or a PowerPoint presentation.

6. Present your report or PowerPoint report to your parents at home and friends in the class.

Note

Remember to be polite and respectful when conducting the interviews.

Summary

Table 5.1 shows the differences between **price versus change in quantity supplied** and **change in supply while price stays the same.**

Criteria	Change in Quantity Supplied at different price (Movement Along the Curve)	Change in Supply due to other factors, price stays the same (Shift of the Curve)
Cause	This occurs when the price of a product changes.	This occurs when other factors (not price) change
Examples	If the price of gari drops from GH¢3 to GH¢2, the quantity supplied may decrease from 10 units to 4 units. This shows a downward movement along the same supply curve.	**Favourable change:** If farmers use a new fertiliser that increases maize production, the supply of maize increases, shifting the entire supply curve to the right.
Examples	If the price of pure water increases from GH¢1 to GH¢2, the quantity supplied may increase as sellers want to make more profit.	**Government policies:** If the government removes taxes on tomato farming, more farmers may supply tomatoes, increasing the supply and shifting the curve to the right.

Graph Representation	It is movement along the same supply curve (upward or downward).	It is a bodily shift of the entire supply curve either to the right (increase in supply) or to the left (decrease in supply).
Effect on Market	Quantity supplied increases or decreases.	Supply increases or decreases.

Activity 5.3 Change in Quantity Supplied Versus Change in Supply

Instructions

1. **Explain the following concepts**

   a. Change in Quantity Supplied

   b. Change in Supply

2. Reflect on a product or service you see in your everyday life (such as snacks at school, fruits in the market, or airtime sold by mobile vendors).

3. Think and write about how changes in price and other factors like weather or new technology might affect the supply of that product you thought about in point 2.

4. On a graph, label the x-axis as the quantity supplied and the y-axis as the price, and sketch an upward-sloping supply curve (S). The curve should slope up from left to right.

5. Show how a change in price causes the quantity supplied to change by drawing a movement along the same supply curve. For example;

   a. If the price increases, move up and to the right along the supply curve (more supply).

   b. If the price decreases, move down and to the left along the supply curve (less supply).

6. Draw a graph to show the entire supply curve shifts either to the right (increase in supply) or the left (decrease in supply). Make sure price remains the same.

7. Explain the difference between a change in quantity supplied and a change in supply in your own words. Refer to the graphs you have drawn to support your explanation.

8. Compare your answers with your friends in class and at home

EXTENDED READING

- https://www.yourarticlelibrary.com/economics/6-factors-affecting-the-supply-of-a-commodity-individual-supply-economics/9016#google_vignette

- https://youtu.be/Ueg-KGvoopw?si=2D8v-c6Pc-k1LW4R

- https://youtu.be/NrlF8mMHfLE?si=BI_y34l5lEHbI_z0

- https://byjus.com/question-answer/distinguish-between-a-change-in-quantity-supplied-and-a-change-in-supply/

1. A farmer produces tomatoes. When the price of tomatoes is GH¢ 5 per kilogram, the farmer supplies 100 kilograms to the market. However, when the price rises to GH¢ 8 per kilogram, the farmer increases the supply to 150 kilograms.

   a. From the scenario, what does the change in "quantity supplied" mean?

   b. What is the farmers' response to the increase in the price of tomatoes?

   c. Using the scenario above, explain how the law of supply applies

   d. If the price of tomatoes falls to GHC4 per kilogram, what do you expect the farmer to do? Why

   e. Plot the relationship between price and quantity supplied for the farmer using a graph sheet.

2. Use the graph below to answer the questions below:

Change in Quantity Supplied
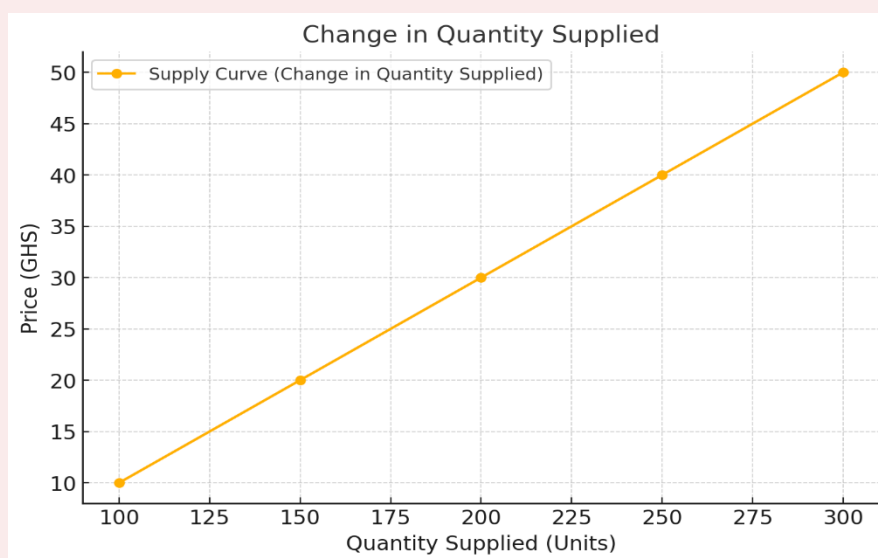
   a. What does the graph show?

   b. How does the quantity supply change as the price increases from GH¢10 to GH¢30?

   c. If a producer increases the price of a commodity from GH¢ 20 to GH¢ 40. Based on the graph, determine the corresponding change in quantity supplied.

   d. If the producer raises the price to GH¢ 50, what quantity will be supplied?

   e. Predict what will happen to the supply if the price drops below GH¢ 10.

3. The price of a bag of cocoa was fixed by the government at GHC1000 and each farmer could supply 500 bags of cocoa. Due to the cost of new farming methods and equipment and the increase in the price of fertilisers, the cost of production increased. As a result of the changes, most farmers left the

farming villages to seek other job opportunities. This led to a reduction in the supply of bags of cocoa.

a. Is this a change in supply or a change in the quantity supplied?

b. State two factors that led to the decrease in the supply of bags of cocoa.

c. Draw a graph to illustrate the scenario above. (The use of a graph sheet is essential).

d. Identify two factors that could motivate cocoa farmers to increase the supply of cocoa.

e. Drawn a table to show four differences between the concept of **change in supply** and **change in quantity supplied**. It should cover the definition, the causes and the effect on the curves.

Multiple Choice Questions

1. What causes a change in quantity supplied?

A. Changes in production technology

B. Changes in the cost of raw materials

C. A change in the price of the commodity

D. An increase in the number of suppliers

2. Which of the following leads to a change in supply?

A. A decrease in the price of a commodity

B. An improvement in technology

C. A consumer's preference for the product

D. A rise in demand for the product

3. When the price of a product increases and the quantity supplied also increases, this is an example of:

A. Change in supply

B. Change in quantity supplied

C. Shift in the supply curve to the left

D. Movement along the demand curve

4. A rightward shift of the supply curve occurs when:

A. Price increases

B. There is a decrease in the number of suppliers

C. The government reduces taxes on producers

D. The price of the commodity decreases

5. If the price of rice increases from GH¢ 10 to GH¢ 15, and producers supply more rice, this is an example of:

    A. A change in supply

    B. A change in quantity supplied

    C. A decrease in supply

    D. A decrease in the quantity supplied

6. Which of the following will NOT cause a change in supply?

    A. Changes in production costs

    B. Government subsidies

    C. A change in the price of the commodity

    D. Technological advancements

MARKET STRUCTURE

FIRMS' INNOVATIVE DECISION MAKING
MARKET ANALYSIS

INTRODUCTION

In this section, you will learn about the different types of market structures, compare these with markets in Ghana and how they influence the operations of businesses. For example, you will explore how market structures like perfect competition might apply to small-scale farmers in your community or how monopolies such as the Electricity Company of Ghana determine pricing and services. You will also discover the types of profits businesses can earn. These include super-normal profits, normal profits, or even sub-normal profits where businesses struggle to cover their costs. By the end of this lesson, you will understand how businesses in Ghana adapt to different market environments and what the different types of profit mean for their growth and survival.

KEY IDEAS

- In perfect competition, many firms sell identical products, and no single firm can influence the market price, while in a monopoly, one firm controls the entire market, leading to higher prices and less competition.
- Market structures describe how businesses interact within an industry, and the main types are perfect competition, monopoly and monopolistic competition, each with different characteristics regarding competition, pricing, and market control.
- Normal profits are the minimum level of profit needed for a company to remain competitive in the market. It's the amount of profit just sufficient to cover the opportunity costs of the firm's resources. Often called breakeven profit.
- Supernormal Profit exceeds the normal profit level. It represents earnings above the necessary return to keep a firm in the market and is often a result of competitive advantages or market power. Often called economic profit.
- Subnormal Profit is less than the normal profit level. It indicates that a firm is not covering its opportunity costs and may need to improve its efficiency or strategy to stay in business. Often called loss.

MARKET STRUCTURES

Market structures describe how markets are organised and how they work, especially in terms of competition and pricing. There are two main types of market structures:

1. **Perfect Competition** (Perfect Market)
2. **Imperfect Competition** (Imperfect Market)

A Perfect Market has the Following Features

1. Many small firms exist.
2. No single firm can control the market price.
3. All firms produce the same products (in this case products can be referred to as 'homogenous goods' – one can be substituted with another without noticing any difference).
4. Free entry and exit into the market.
5. Firms accept market-set prices (price takers).
6. Buyers and sellers have full and immediate knowledge about prices, products, and production methods.
7. Prices are determined by supply and demand.
8. Firms produce where marginal cost equals marginal revenue.

An Imperfect Market has the Following Features

1. The number of firms varies widely based on the type of imperfect market.
    a. Oligopoly: A few firms dominate.
    b. Monopolistic Competition: Many firms selling similar but differentiated products.
    c. Monopoly: A single firm controls the market.
2. Products differ in quality, features, or branding.
3. Restrictions exist on the entry of new firms into the market.
4. Firms have some control over prices (market power).

TYPES OF MARKETS

The next part of section 6 looks a little deeper into types of market and their features using examples from Ghana to show how they work.

Perfect Competition Market

A **perfect competition market** is a type of market that is used as a standard to compare other markets. In such a market, no single firm is big enough to control the market or change the price of goods and services in the market.

Examples of perfect competition markets are

1. The sale of products like maize, tomatoes, cassava, and yam in the local markets such as Agbogbloshie Market. These goods are the same and sellers and buyers have many options.

2. The sale of cattle, goats, and sheep in open markets. These animals are the same across sellers and buyers, and prices are influenced by supply and demand.

Figure 6.1: Images of a perfect competitive market

Characteristics of a Perfect market

1. There are many buyers and sellers with no firm having ultimate control over the market conditions.

2. All the firms in the market sell homogenous or identical products.

3. There are no barriers to entry and exit. New firms can easily join, and old firms can leave the market without facing big costs or rules.

4. Firms in the market are price takers. This means they accept price as determined by the forces of demand and supply and none of the firms can influence the price.

5. All firms in the market aim to maximise profit at the point where marginal cost is equal to marginal revenue (MC=MR).

6. The activities of buyers and sellers do not have any external effect on third parties that are not involved in the market.

7. Buyers and sellers have full information about the prevailing market conditions.

Advantages of Perfect Competition

1. **Efficient Use of Resources**: In perfect competition, firms use resources efficiently. They produce goods at the lowest cost and the prices match the marginal cost. This prevents waste and ensures resources are used where they are needed most.

2. **Benefits to Consumers**: Consumers enjoy low prices because of the high level of competition among firms. They also have access to a variety of products that meet their needs.

3. **Encourages Improvement**: Firms are motivated to improve their products and processes to reduce costs and stay competitive. Although they may not earn big profits, they focus on being efficient and making small improvements.

4. **Improves Economic Welfare**: In a perfectly competitive market, both consumers and producers get the most benefit. This creates the highest possible level of well-being for society, with no waste of resources.

5. **Transparency**: Everyone in the market has full and clear information about prices, product quality, and how goods are produced. This openness helps consumers make good choices and builds trust in the market.

Disadvantages of Perfect Competition

1. **No Big Profits (Supernormal Profits)**: In the long run, firms only make normal profits, and this limits their ability to invest in big projects or advanced research and development.

2. **Limited Variety of Products**: Because firms sell the same type of product, it limits consumers' choices, which can affect their satisfaction.

3. **Unrealistic Assumption About Information**: Perfect competition assumes that both buyers and sellers have accurate information about prices and products. In real life, this is not always true because some buyers may not have access to all the information they need.

4. **No Benefits from Large-Scale Production (Economies of Scale)**: Firms in perfect competition are usually small, so they cannot enjoy the benefits of producing on a large scale, like lower costs as compared to larger firms in other markets.

5. **Limited Long-Term Improvement**: Perfect competition may not promote long-term improvements through innovation or new technology as compared to other markets. This is because firms do not make extra profits (supernormal profits) to invest in research and development for future growth.

6. **Not Realistic in the Real World**: Perfect competition is an idea used to explain how markets work, but it does not exist in real life. Most markets have some imperfections.

Monopoly (Imperfect Market)

A monopoly is a type of market where there is only one producer or seller of a particular product or service with no close substitute. The monopolist has full control over the market and can influence prices and supply. Examples in Ghana *include* Ghana Water Company Limited, Electricity Company of Ghana (ECG), Ghana Post.

Figure 6.2: *Image of a monopoly firm (Government Monopoly)*

Characteristics of a Monopoly Market

1. **Single Seller**: There is only one firm that provides the product or service in the market, and he/she has full control over the supply.

2. **Unique Product**: The product or service sold by the monopolist has no close substitutes, meaning customers can only get it from this seller or producer alone.

3. **High Barriers to Entry**: It is difficult for new firms to enter the market because of restrictions like high startup costs, exclusive control over important resources, government laws, or the need to produce on a large scale.

4. **Price Maker**: The monopoly controls the price of its product. Unlike in perfect competition, it can set higher prices to make more profit.

5. **Market Power**: The monopoly can influence what happens in the market, such as setting prices, deciding how much to produce, and controlling the availability of the product.

Advantages of a Monopoly

1. **Lower Costs from Producing More (Economies of Scale):** Monopolies can produce in large amounts, reducing the average cost of making each product. This might lead to lower prices for consumers.

2. **Encourages New Ideas (Research and Development):** Monopolies earn high profits, which they can use to finance their research and come up with new and better products. Because there is no competition, they can focus on long-term projects and innovations.

3. **Stable Prices:** Since a monopoly controls the supply, prices are often more stable compared to competitive markets, where prices can go up and down frequently.

4. **Better Use of Resources for Big Projects:**

5. Monopolies can handle large, expensive projects like building power plants or water systems because they have enough money and control.

6. **Consistent Quality (Standardisation):**
   A monopoly can make sure products are uniform and of good quality, which is especially useful in industries like electricity and water supply.

Disadvantages of Monopoly

1. **Higher Prices**: Monopolies can charge higher prices because they control the market and face little competition. This increases the costs of products leading to a decrease in quantity demanded.

2. **Restricted Output**: Monopolies may produce less than what would be produced in a competitive market to maximise profits. This can cause shortages of goods.

3. **Economic Inefficiency**: Monopolies may not use resources efficiently, leading to waste. Without competition, they might not try to reduce production costs, which can increase waste and make goods more expensive.

4. **Lack of Innovation**: Monopolies may not feel the need to improve or create new products because they do not face competition. This can slow down innovation and improvement in the quality of goods and services.

5. **Poor Customer Service**: Because there is no competition, monopolies may not provide good customer service due to a lack of other choices. They might ignore consumers' needs and preferences.

6. **Barriers to Entry**: Monopolies make it difficult for new firms to enter the market. This reduces competition and can slow down innovation.

7. **Regulatory Challenges**: Monopolies are often monitored by the government to prevent them from misusing their power. This can lead to extra costs from legal and regulatory requirements.

Monopolistic Competition (Imperfect Market)

Monopolistic competition is a market structure where many firms are selling similar products but no one has exactly the same features. Each firm can set its prices because its products are set apart from the others in terms of brand, quality, packaging, unique features, customer service, for example. To attract customers, firms engage in continuous advertising and improving the quality of their products rather than just lowering prices.

Examples

- **Restaurants and Food Joints**: Chop bars, local food vendors, and fast-food chains like Papaye and KFC sell differentiated food items but compete in the same market.

- **Clothing and Fashion**: Tailors, seamstresses, and boutique owners offer similar services and products but differentiate through style, quality, and branding.

- **Retail Stores**: Shops in marketplaces or shopping malls sell similar goods but attract customers through branding, location, or promotions.

In monopolistic competition markets, where **many firms sell products that are differentiated but not perfect substitutes**, *externalities* can arise in various forms. They are called **externalities** because they do not play a part in the transaction (sale of goods or services) so do not affect price. They mainly affect third parties not directly involved in economic transactions. Negative externalities are environmental pollution, traffic congestion and noise pollution. Positive externalities are new knowledge from research, environmental improvements and community development. Externalities play a crucial role in shaping the overall economic and social environment in which these firms operate.

Figure 6.3: Images of a Monopolistic competitive market

Characteristics of Monopolistic Competition

1. **Numerous Firms**: There are many firms with each controlling a small part of the market.

2. **Product Differentiation**: Products are made unique through branding, quality, and other features, giving firms some control over their prices. (the term information asymmetry is often applied to brands where the companies with strong brands make customers think they have a higher quality or unique features, even if the actual differences are minimal)

3. **Free Entry and Exit**: New firms can enter the market easily, and existing ones can leave, which prevents them from making supernormal profits in the long run.

4. **Independent Pricing**: Each firm sets its prices without consulting with competitors.

5. **Non-Price Competition**: Firms also compete in other activities such as through advertising, better quality and good customer service.

Advantages of Monopolistic Competition

1. **Consumer Choice**: There are many products and brands to choose from, meeting different tastes and preferences. (This can lead to a **consumer surplus**. For example, a consumer might be willing to pay 5 cedis for their favourite soft drink but due to competition between retailers they only pay 3 cedis. So, they get an economic benefit of 2 cedis and this represents the extra satisfaction from their transaction. Have you ever experienced this? Share your experiences with a friend).

2. **Product Differentiation**: Firms improve their products by adding new features, better quality, or services, encouraging innovation. (This can lead to **producer surplus**. For example, a firm might produce a smartphone which they can sell in the market at 900 cedis and make a profit. However, because of unique features and strong brand image they set the market price at 1200 cedis. The firm benefits from product differentiation by attracting consumers willing to pay more, thus increasing their producer surplus – the extra profit they make above the minimum price they are willing to accept.)

3. **Competitive Prices**: Even though firms have some control over prices, competition keeps prices moderate and reasonable.

4. **Efficient use of resources**: Firms work to meet consumer needs, leading to better use of resources compared to monopolies (In Economics the word 'efficiency' is used where the necessary resources are used to achieve the best possible outcome, without waste for example. It involves maximising outputs from given inputs or minimising the inputs needed to achieve a desired output.)

5. **Flexibility**: Many firms in the market can quickly adapt to changes in consumer needs and market trends.

6. **Entry and Exit**: New firms can easily enter the market, creating competition that leads to innovation and improvement in the quality of the product.

Disadvantages of Monopolistic Competition

1. **Higher Prices**: Prices may be higher because there is no perfect competition to keep prices low.

2. **Too Much Advertising**: Firms spend a lot on advertising to make their products stand out, which can be wasteful and increase costs for consumers.

3. **Short-Term Profits**: In the long run, firms only earn normal profits due to easy market entry and exit, which can reduce investment and innovation.

4. **Consumer Confusion**: Too many options and heavy advertising can make it difficult for consumers to make clear decisions.

5. **False or Misleading Information**: Some advertisements may exaggerate or give false information about products.

6. **Wasted Resources**: Many firms producing similar products may waste resources that could be used better elsewhere.

7. **It leads to inefficiency:** Firms do not produce at the lowest cost because they have unused capacity. This means they produce less than what is needed to keep costs as low as possible, leading to inefficiency.

Activity 6.1 Understanding Different Types of Market

Instructions

In this activity, you will watch a video showing different market scenarios. From the video you will be expected to identify the types of markets. Your teacher will provide the video.

1. Watch the video to observe how each market operates, focusing on the number of sellers, the products sold, and how prices are determined.

2. Identify the market type in each scenario by noting the number of sellers, the type of goods or services, and whether the price is set by the market or a single seller.

3. Explain each market type, using clues like the number of sellers, the type of goods or services, and how prices are set.

4. Compare and contrast two market types, highlighting their similarities and differences, such as between perfect competition and monopoly, monopolistic competition and monopoly, or perfect competition and monopolistic competition by focusing on the number of sellers, how prices are determined, the level of competition and the control each seller has over prices.

5. Write a short paragraph or make a short audio explaining how these two market types are similar and different from each other.

6. Compare your findings with two of your friends in class. Aim to develop friendships with a diverse group of people, including different genders, backgrounds, and perspectives.

Activity 6.2 Matching Market Types to Their Features

Instructions

This activity will help you understand the key characteristics of different types of markets: Perfect Competition, Monopolistic Competition, and Monopoly.

1. Read the list of features below. Each market type (Perfect Competition, Monopolistic Competition, and Monopoly) has specific characteristics that you need to match.

2. Match the following Features to their appropriate Market Type (Perfect Competition, Monopolistic Competition and Monopoly) to complete the table.

Feature	Market Type
Many sellers, all offering identical products.	
One seller controls the entire market.	
Barriers to entry are low, making it easy for new sellers to enter.	
Firms sell similar but slightly different products.	
Firms have no control over the price of the product.	
High barriers to entry, making it difficult for new firms to enter the market.	
Prices are determined by supply and demand.	
There is little or no product differentiation.	

3. Compare your findings with three of your friends in class.

Note

Remember to respect and accept others' findings and politely give your opinion.

TYPES OF PROFIT IN EACH MARKET STRUCTURE

The various market structures come with different types of profit that firms operating in the market can earn. The three types of profit are Normal Profit, Supernormal Profit, and Subnormal Profit.

Normal Profit: The minimum level of profit needed for a company to remain competitive in the market. It's the amount of profit just sufficient to cover the opportunity costs of the firm's resources. Often called breakeven profit.

Supernormal Profit: Definition: Profit that exceeds the normal profit level. It represents earnings above the necessary return to keep a firm in the market and is often a result of competitive advantages or market power. Often called economic profit.

Subnormal Profit: Profit that is less than the normal profit level. It indicates that a firm is not covering its opportunity costs and may need to improve its efficiency or strategy to stay in business. Often called loss.

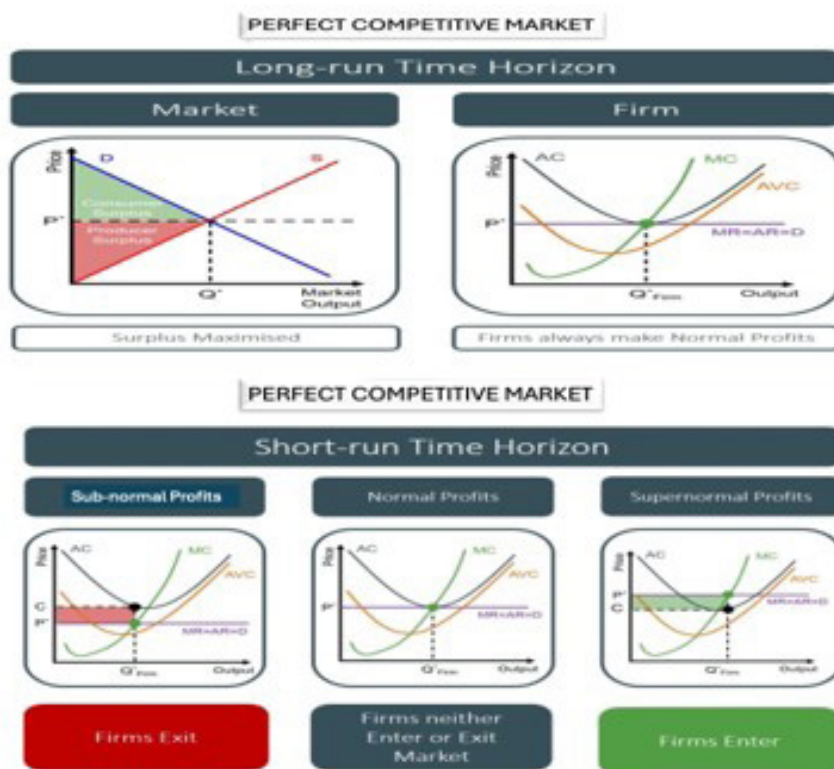## Profits in a Perfect Competition Market

Normal Profit

The minimum profits a firm need needs to make in order to stay competitive is called normal profit. It covers all opportunity costs. In the long run, firms in a perfect competitive market earn normal profits because of free entry and exit of firms.

Supernormal Profit

Supernormal profit is the extra profit a firm earns above normal profit. Firms can make supernormal profits in the short run because of temporary advantages, but in the long run, competition reduces it to zero.

Subnormal Profit

Subnormal profit occurs when firms earn less than normal profit, often due to changes in demand or costs. In a perfectly competitive market, firms that cannot cover total costs make losses. Some may continue to operate in the short run if they can cover variable costs. However, firms cannot make subnormal profits in the long run because if losses continue, some firms will leave the market, reducing supply and helping remaining firms return to normal profit.

Figure 6.4: Types of profit in a perfectly competitive market

Profits in a Monopoly Market

Normal Profit

This is the minimum profit required to keep firms in operation. A monopolist always makes at least a normal profit because there is no competition.
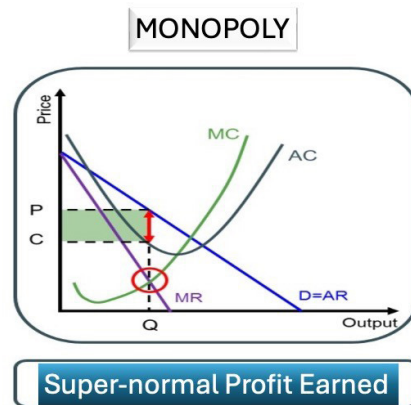
Super-Normal Profit

This is the extra profit earned beyond the normal profit. It happens when a business, like a monopoly, can set prices higher than the cost of producing one more unit. Monopolists can keep making super-normal profits in both the short and long term because it is hard for new businesses to enter the market and compete.

Sub-Normal Profit

Subnormal profits are rarely experienced in a monopoly because the firm can control prices and limit competition to always cover its costs and earn profits.

Figure 6.5: *Type of profit in Monopoly*

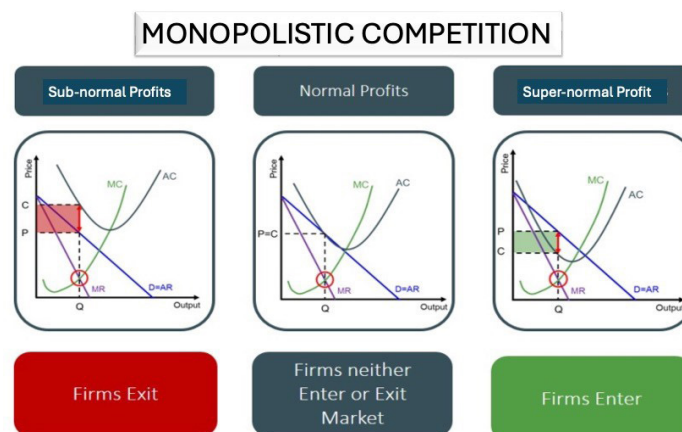# Profits in a Monopolistic Competition Market

Normal Profit

In monopolistic competition, firms make normal profits in the long run because new firms enter in the short run when profits are high, and struggling firms leave the market when losses occur. This process continues until all firms earn normal profits to stay in business.

Super-Normal Profit

Firms earn super-normal profits in the short run if they have some control over prices due to product differentiation. However, in the long run, due to free entry and free exit, new firms join the market, increasing competition and reducing profits to normal levels.

Sub-Normal Profit

Firms can make losses (sub-normal profit) in the short run due to high competition or changing customer preferences. Some firms may continue to operate in the short- run to cover their variable costs. But in the long run, firms that continue to make losses will leave, reducing competition and helping remaining firms make normal profits.

Figure 6.6: *Diagram showing types of profit in a monopolistic competition*

Activity 6.3 Understanding the types of Profit in different Market Structures

Instructions

In this activity, you will learn about the different types of profits in the three market structures (Perfect Competition, Monopolistic Competition, and Monopoly) and explore how profits vary in the short-run and long-run for each structure.

1. Identify the types of profits in the three market structures.

2. Differentiate between short-run and long-run profits

3. Describe the profits for each market structure in the short run.

4. Describe the profits for each market structure in the long run.

5. What type of profit is a business in your community, such as a local seller of kenkey, waakye, or fish, making based on the market structure that best fits it? How might this profit change in the short run vs. the long run?

6. Share your findings with your parents or guardians at home and friends in class.

EXTENDED READING

- https://learnbusinessconcepts.com/explanation-of-market-structures-with-features-types-examples/

- https://www.tutor2u.net/economics/reference/3-3-4-normal-profits-supernormal-profits-and-losses-edexcel

- https://youtu.be/d5-gDFkOhZI?si=8TQXAtVRGTYHXUZh

REVIEW QUESTIONS

1. In Nyamekye Town, there are several shops selling bread, but all the bread looks and tastes similar. The prices of the bread in the town are the same and none of the shop owners can set their prices too high because customers will just buy from another shop. There is a big company in the town called Nyamekye Water Ltd. It is the only company that supplies clean water to the entire town. On the main road to the lorry station in Nyamekye town, several small businesses are selling mobile phones, each offering different brands and designs with daily advertisements in the media.

   a. State the three types of market structure.

   b. What type of market structure could be applied to:

      i. The Bread Market

      ii. Nyamekye Water Limited

      iii. The mobile phone markets

   c. Explain the reasons for your choice in (b) above.

   d. If you were a shop owner in the mobile phone market, how would you attract more customers?

   e. State at least two differences between the businesses that operate in Perfect Competition and Monopolistic Competition in Nyamekye town.

2. In Akuafo Town, a group of tomato sellers in the local market are in competition. Because all the sellers offer the same size and quantity of tomatoes, they cannot charge higher prices. They can only make the least profit which is just enough to cover their costs. In another part of town, there are many hairdressers. Each offers slightly different styles, prices, or services to attract customers. Some make supernormal profits when they attract more customers, while others make normal profits. Akuafo Water Company is the only water supplier in town. It charges high prices because there are no competitors, so it consistently makes supernormal profits.

   a. Explain the three types of profits.

   b. Why do the tomato sellers in the market only make a normal profit?

   c. Explain why Akuafo Company earns supernormal profit as a monopoly.

   d. Using a diagram, illustrate how a monopoly firm earns a supernormal profit.

   e. Compare the types of profits earned in the Perfect competitive market and the monopolistic competitive market.

Multiple Choice Questions

1. Which of the following best defines a market?
   A. A physical place where people buy and sell goods
   B. Any arrangement that allows buyers and sellers to exchange goods and services
   C. A large store where goods are sold
   D. A group of people competing for resources

2. Which type of market has many sellers offering identical products?
   A. Monopoly
   B. Monopolistic competition
   C. Perfect competition
   D. Oligopoly

3. What is the key characteristic of a monopoly?
   A. Many firms selling similar products
   B. One firm controlling the entire market
   C. Few firms dominating the market
   D. No competition among firms

4. Which of the following is an example of monopolistic competition?
   A. A single electricity provider in a town
   B. A bakery selling bread with unique recipes
   C. Farmers selling identical bags of maize
   D. Two airlines dominating an air route

5. What is a feature of an oligopoly?
   A. Large number of buyers and sellers
   B. Only one producer in the market
   C. A few firms controlling most of the market
   D. No advertising by firms

6. What is normal profit?
   A. A profit that is higher than the firm's total costs
   B. A profit that covers the firm's total costs, including opportunity cost
   C. A profit made by new firms entering the market
   D. A profit that depends on market demand

7. When does a firm earn supernormal profit?

    A. When revenue equals total costs

    B. When price is below *average cost*

    C. When price is *above average cost*

    D. When marginal cost equals marginal revenue

8. In which type of market structure are firms most likely to earn only normal profits in the long run?

    A. Monopoly

    B. Monopolistic competition

    C. Perfect competition

    D. Oligopoly

9. A firm earning supernormal profit is most likely operating in which market structure?

    A. Perfect competition

    B. Monopolistic competition

    C. Monopoly

    D. None of the *above*

10. Why do firms in monopolistic competition earn normal profits in the long run?

    A. New firms enter the market and increase competition

    B. The government regulates their profits

    C. Customers stop buying differentiated products

    D. Firms form agreements to fix prices

PRICE ANALYSIS AND PREDICTION IN THE MODERN ECONOMY

PRICE AND EQUILIBRIUM ANALYSIS

INTRODUCTION

Welcome to Section 7. In this section, you will learn about the **equilibrium situation in the market**, which occurs when the quantity of goods or services supplied equals the amount demanded at a certain price. This is a key concept for understanding how markets in Ghana, such as the market for fish or tomatoes balance the supply and demand. When the market is in equilibrium, there is neither a surplus nor a shortage of goods, and businesses can operate smoothly. You will also discover how to **determine the equilibrium price and quantity**. By looking at where supply and demand curves intersect, you will learn how to calculate the price at which goods are sold and the quantity that buyers are willing to purchase at that price. This will help you understand how market forces like changes in consumer preferences or weather conditions can affect prices in real life.

KEY IDEAS

- At equilibrium, the price of a good or service is stable, as the forces of supply and demand are balanced, and neither buyers nor sellers have an incentive to change the price.
- The equilibrium situation in the market occurs when the quantity demanded by consumers equals the quantity supplied by producers, meaning there is no surplus or shortage of goods.
- The equilibrium quantity is the amount of goods that buyers are willing to purchase at the equilibrium price, and it is the same amount that producers are willing to supply.
- To determine the equilibrium price and quantity, you need to find the point where the supply and demand curves intersect, representing the price and quantity at which the market is balanced.

MARKET EQUILIBRIUM

In Economics, market equilibrium is a condition or situation where the quantity of goods or services supplied is equal to the quantity of goods demanded. The equilibrium condition involves a stable market price for the goods and services consumed. It strikes a balance between the quantities or amount of goods or services demanded and the amount the amount or quantities of goods or services the producer is willing to put forward on the market.

1. **Supply** refers to the quantities or amount of goods or services that producers are willing and able to sell at various prices over a period of time.

2. **Demand** refers to the quantities of a good or service that consumers are willing and able to purchase at various prices over a period of time.

3. The **equilibrium price** is the price at which the quantity of a good supplied over some time equals the quantity of goods or services demanded.

4. The **equilibrium quantity** also is the number of goods and services bought and sold at the equilibrium price which is expressed mathematically as "market equilibrium is reached when the Quantity (Qd) equals the Quantity supplied (Qs).

MARKET EQUILIBRIUM
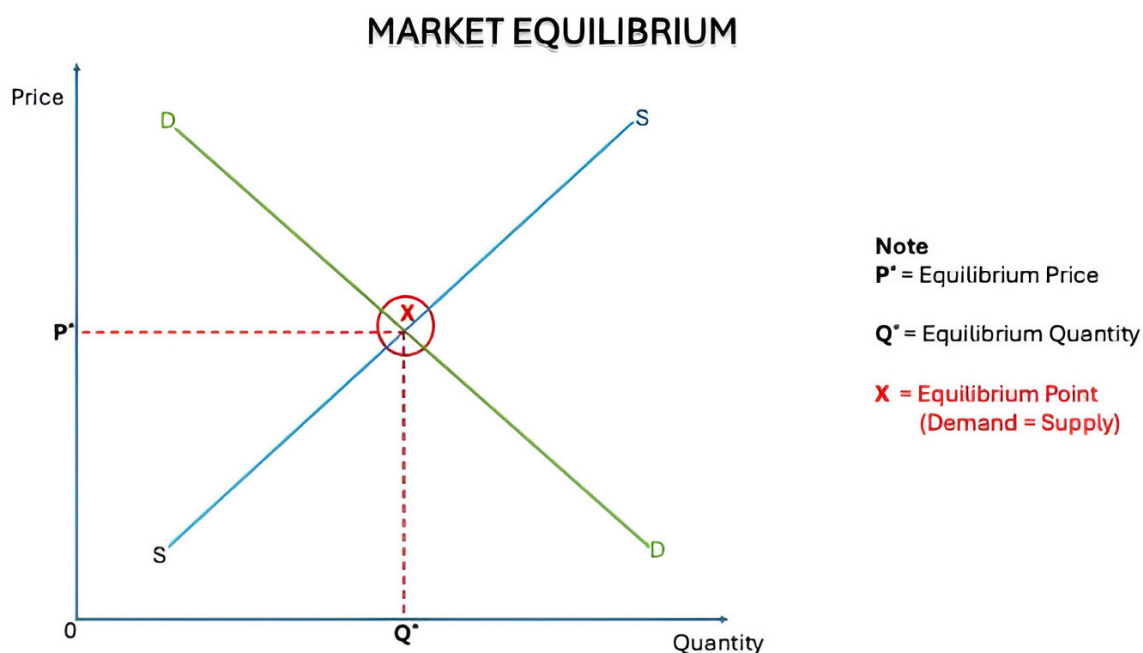
Figure 7.1: A graphical illustration of a market equilibrium

Demand Function

The demand function is the mathematical expression that shows how price of a commodity varies with the quantity demanded of the commodity. This is expressed as the function:

Qd = a - bP

Where: '**Qd**' is the quantity demanded, '**P**' is the price of the commodity, '**b**' is the gradient or slope (which measures the variability of the price with the quantity), '**a**' is the constant or the tendency for the consumer to consume more.

In this context, the demand function can also be referred to as the **demand equation**:

Qd=a−bP

Supply Function

The supply function is the mathematical expression that shows how the quantity supplied of a commodity varies with the price of the commodity.

This is expressed as the function **Qs = c + dP**

Where: '**Qs**' is the quantity supplied, '**P**' is the price of the commodity, '**d**' is the gradient or slope which measures how much the quantity supplied changes in response to a change in price, '**c**' is a constant indicating the baseline quantity supplied when the price is zero; it reflects the producer's tendency to supply a certain amount regardless of price.

In this context, the supply function can also be referred to as the supply equation

Qs = c+ dP

Activity 7.1 Understanding Market Equilibrium

Instructions

In this activity, you will learn about market equilibrium, where supply and demand meet, by using infographics and practicing graphing the concept.

1. What is Market Equilibrium?

2. Use paper or a digital tool like PowerPoint to draw line graphs of supply (slopes up from left to right) and demand (slopes down from left to right) curves showing the point where the two curves intersect. This is the equilibrium point.

3. Label the equilibrium price and the equilibrium quantity on the graph.

4. What happens at the equilibrium price, and how is the number of goods buyers want to purchase equal to the amount that sellers want to sell?

5.   Write or make a short audio report on your findings.

6.   Share your report with the class for discussion and feedback. Respect and accept others' feedback and support your friends who are struggling.

DETERMINATION OF EQUILIBRIUM PRICE AND QUANTITY USING ALGEBRA

In the market situation, the equilibrium price and the equilibrium quantity is derived by determined the equilibrium point. This is done by combining the two equations for the quantity demanded with the quantity supplied.

Follow the procedure below step by step:

Given:

- Demand Equation: $Qd = a - bP$

- Supply Equation: $Qs = c + dP$

Step 1: To find the equilibrium, set the demand function equal to the supply function:

Qd = Qs

Step 2: Substitute the given equations: **a−bP = c+dP**

Step 3: Solve the equation in step 2 to find P:

a.   Rearrange the equation (change sides change sign):   **a−c = bP+dP**

b.   Combine the terms with P using factorisation: **a−c = P(b+d)**

c.   Divide both sides of the equation by (b+d): **P =**

Step 4: Now you know equilibrium price P in terms of a, b, c and d this can be is substituted it back into either the demand or supply function to find the equilibrium quantity Q.

For example, the demand and supply function of pineapples is given as Qd = 100 - 2P and Qs = 20 + 3P. Calculate the equilibrium price.

Answer

At equilibrium Qd = Qs, but Qd =100 - 2P and Qs = 20 + 3P

Equating Qd to Qs gives 100 - 3P = 20 + 3P

100 - 20 = 3P + 2P (grouping like terms)

80 = 5P

P = 16

The equilibrium price is 16 units.

To find the equilibrium quantity, you will substitute the value of the equilibrium price, P=16 for P in any of the equations. That is considering the demand function Qd=100-2P and substituting the value of P into Qd =100 - 2P, gives Qd = 100 - 2(16)

Qd =100 - 32

Qd =100

Substitute P=16 for P in Qs=20+3P

Qs = 20+3(16)

Qs = 20+48

Qs = 68 units

Hence, at equilibrium Qd = Qs, ie 68 = 68.

Activity 7.2 Understanding Market Equilibrium Using Algebra

Instructions

In this activity, you will explain market equilibrium with simple algebra. Imagine that the demand function and supply function for a product are given as:

Demand Function (Qd) = 50 - 2P and Supply Function (Qs) = 10 + 3P. where 'P' represents the price, and Qd and QS represent the quantity demanded and supplied respectively.

1. Write down the equilibrium function by equating the demand function to the supply function.

2. Calculate for P (price) when Qd = Qs by making price the subject of the equation.

3. Substitute the value of 'P' as derived in step 2 above into either the demand or supply function and solve carefully to arrive at the equilibrium quantity.

4. Draw the demand and supply curves on a graph. Label the axes (the vertical axis represents the price, and the horizontal axis represents the quantity).

5. Plot the equilibrium price (P = 8) and the equilibrium quantity (Q = 34) on the graph.

6. Mark the point where the supply and demand curves intersect. This is your market equilibrium.

7. What do the equilibrium price and equilibrium quantity you have calculated mean?

8.   Make a short presentation on your findings using PowerPoint, audio, or written report.

9.   Share your presentation with the class for discussion and feedback.

EXTENDED READING

- https://inomics.com/terms/market-equilibrium-1431109

1. In Ghana, cocoa is an impo rtant agricultural product, and both consumers and producers are involved in its market. The Ghanaian government, cocoa farmers, and traders are all interested in the price and quantity of cocoa in the market.

   The following table describes the cocoa market:

Price (Gh¢)	Quantity of Cocoa demanded (tons)	Quantity of cocoa supplied (tons)
1000	900	200
1500	700	350
2000	500	500
2500	300	650
3000	100	800

   a. What does market equilibrium mean in an economic market?

   b. What is the relationship between supply and demand in market equilibrium?

   c. What happens to the price and quantity of goods when the market is in equilibrium?

   d. Draw a graph that shows the demand and supply curves for the cocoa market.

   e. How do you know from the graph where the market is in equilibrium?

   f. Analyse a market equilibrium condition using demand and supply curves.

2. In the Ejura market for yams, the following equations describe the demand and supply for yams:

   • Demand function for yams: $Qd = 150 - 3P$

   (where P is the price of yam per tuber, and Qd is the quantity of yam demanded at price P)

   • Supply function for onions: $Qs = 30 + 4P$

   (where P is the price of yam per tuber, and Qs is the quantity of yam supplied at price P)

   a. What is the equilibrium condition in a market?

   b. State the demand and supply functions for yam as given in the case study.

    c. Calculate the equilibrium price and quantity for yam.

    d. Analyse what the equilibrium price means for the market.

Multiple Choice Questions

1. What is market equilibrium?

   a. The point where supply exceeds demand

   b. The point where demand exceeds supply

   c. The point where the quantity of goods supplied equals the amount of goods demanded

   d. The point where the price is fixed and cannot change

2. Which of the following describes the equilibrium price?

   a. The price at which the quantity demanded exceeds the quantity supplied

   b. The price at which the quantity supplied exceeds the quantity demanded

   c. The price at which the quantity demanded equals the quantity supplied

   d. The price at which producers are unwilling to sell

3. What happens in the market if the quantity demanded is greater than the quantity supplied?

   a. Prices tend to rise

   b. Prices tend to fall

   c. The market is in equilibrium

   d. The market is inefficient

4. In the context of market equilibrium, what does "demand" refer to?

   a. The amount of a good or service that consumers are willing and able to buy at various prices

   b. The total amount of a good or service produced by firms in the market

   c. The price at which goods are sold

   d. The amount of a good that producers are willing to sell

5. What occurs when the market is not in equilibrium?

   a. The market automatically adjusts to the equilibrium price

   b. The price stays the same

   c. Producers and consumers reduce their activities

   d. The price becomes volatile and uncertain

6. What is the first step in determining the equilibrium price and quantity algebraically?

   a. Solve for the price first, then the quantity

b. Set the quantity demanded equal to the quantity supplied

c. Find the slope of both the demand and supply curves

d. Use the demand function to calculate the price

For questions 7 to 10 use the demand function $Qd = 100 - 2P$ and the supply function $Qs = 20 + 3P$

7. Given the demand function $Qd = 100 - 2P$ and the supply function $Qs = 20 + 3P$, what is the equilibrium price and equilibrium quantity?

   a. Equilibrium price is Gh₵ 5 and equilibrium quantity is 90 units

   b. Equilibrium price is Gh₵ 16 and equilibrium quantity is 90 units

   c. Equilibrium price is Gh₵ 10 and equilibrium quantity is 75 units

   d. Equilibrium price is Gh₵ 16 and equilibrium quantity is 68 units

8. After solving for P, the equilibrium price, what do you do next to find the equilibrium quantity?

   a. Use only the supply equation to find the equilibrium quantity

   b. Use only the demand equation to find the equilibrium quantity

   c. Use the equilibrium price in both the demand and supply functions to verify the result

   d. Both B and C are correct

9. If the equilibrium price is found to be 16, what is the new equilibrium quantity in the market?

   a. 50

   b. 68

   c. 80

   d. 100

10. In the equation $Qd = 100 - 2P$, what does P represent?

    a. The price of the good in the market

    b. The quantity of goods demanded

    c. The total cost of production

    d. The total supply of goods

GOVERNMENT ECONOMIC POLICY AND TRADE

MACROECONOMIC VARIABLES (GDP, INFLATION, UNEMPLOYMENT, EXCHANGE RATE)

INTRODUCTION

In this section, you will discover how changes in key macroeconomic variables such as **gross domestic product, inflation, unemployment, and interest rates**, can affect the Ghanaian economy and other countries. For instance, rising inflation might reduce consumer purchasing power (the ability to afford goods and services), leading to higher costs for consumers. Similarly, higher unemployment can result in lower national output, as fewer people are working and producing goods and services. This reduction in output can impact the overall economic growth and tax revenues of a country.

You will also learn about **control policies**, like fiscal and monetary policies, that the government uses to manage and stabilise the effects of the macroeconomic variables in the economy. Additionally, you will discover how to **calculate National Income** using the three main approaches: the income approach, the expenditure approach, and the product approach. Finally, you will understand the **uses and importance of National Income**, such as measuring the **standard of living**, guiding government or banking policy decisions, and tracking economic growth.

KEY IDEAS

- An increase in inflation **reduces purchasing power**, meaning people can buy less with the same amount of money, leading to **higher costs** for goods and services. High **unemployment reduces** the economy's total output, as **fewer people are working** and producing goods and services.

- Changes in macroeconomic variables, such as **GDP** (Gross Domestic Product- the total value of all goods and services produced within a country's borders), **inflation** (the rate at which prices for goods and services rise), **unemployment** (the percentage of the labour force that is jobless and actively seeking work), and **interest rates** (the cost of borrowing money), can significantly affect the economy Ghana. These changes influence factors like consumer spending, business investment, and overall economic growth.

- Governments can use **fiscal policies** (like changing tax rates or government spending) and **monetary policies** (like adjusting interest rates or the money supply) to control the effects of macroeconomic changes.

- **National income** can be calculated using **three different approaches**: the *income approach* (summing all incomes earned), the *expenditure approach* (adding all spending in the economy), and the *product approach* (calculating the total value of goods and services produced).
- **National income** is an important **indicator of a country's economic health**. It reflects the GDP, the total value of goods and services created within the economy over a specific period, typically a year.
- **National income** helps measure the **standard of living** (the average wealth, comfort, and material goods available to a person or community), track **economic growth** (the increase in the amount of goods and services produced per head of the population over a period), and guide **government policy** decisions aimed at improving citizens' welfare.

EFFECTS OF CHANGES IN FUNDAMENTAL MACROECONOMIC VARIABLES ON THE ECONOMY

In any country, the economy is constantly changing. Macroeconomic variables significantly influence how well the economy performs. **Gross Domestic Product (GDP) measures the total value of all goods and services produced within a country over a specific period, usually a year.** Changes in GDP directly impact the economy by indicating whether it is growing or shrinking.

a. When GDP increases, it generally signifies more jobs and higher living standards.

b. When GDP decreases, it can result in higher unemployment and economic difficulties.

At this level, you will focus on how changes in **inflation, unemployment, and exchange rates** affect GDP:

Inflation: A sustained increase in the general price level of goods and services, which can reduce consumer purchasing power and affect economic stability.

Deflation: Deflation is the general decline in prices for goods and services across an economy.

Unemployment: The percentage of the labour force that is jobless and actively seeking work, which can lower total economic output and consumer spending.

Exchange Rate: The value of one currency in terms of another, which can influence international trade, imports, and exports.

Understanding these relationships will help you grasp how various factors interplay to influence a country's economic health.

Inflation

Inflation is when prices of goods and services, like food, clothes, and transportation, increase over time. In Ghana, just like in any country, inflation can affect how much the economy grows or shrinks, which is shown by changes in GDP (Gross Domestic Product).

1. When inflation is low and stable, people and businesses can plan better because they know prices will not change too much. This helps the economy grow because people have more money to spend, businesses can make more products, and overall, GDP increases.

2. When inflation is high, prices increase rapidly, making things more expensive. If people cannot afford to buy as much, businesses sell fewer products, and the economy may slow down. As a result, GDP could decrease because people are spending less, and businesses are producing less.

In Ghana, if inflation gets too high, it can make life harder for people because their money does not go as far. But if inflation stays under control, it can help the economy grow and make life better for everyone.

Figure 8.1: Image depicting Inflation

Table 8.1: Effects of inflation on an economy

Positive Effects of Inflation	Negative Effects of Inflation
It encourages Spending and Investment: When inflation is low, people may be more likely to spend and invest their money rather than to save it because they know prices might rise in the future. This can help businesses grow and create jobs, which is good for the economy.	**It makes things more expensive**: Inflation increases the cost of everyday goods and services like food, transportation, and housing. This can be difficult for people in Ghana, especially those with lower incomes because their money cannot buy much as before.
It increases Wages: Inflation can lead to higher wages for workers, especially if businesses raise pay to keep up with higher prices.	**It creates Uncertainty and Stress**: High inflation makes it hard for people and businesses to predict future prices, leading to uncertainty, stress, and slower economic growth.

It helps Reduce Debt: Inflation can make it easier for people and the government to pay off debt. If prices and wages rise, the money borrowed in the past is worth less, so it becomes easier to repay loans or debts.	**It reduces Savings**: When inflation is high, the value of money decreases over time. This means that if people save money in a bank, it might lose its value as prices rise. So, saving money becomes less rewarding.
Business Profits Increase. For businesses, selling goods at higher prices can increase profits, and the money can be used to improve production processes or employ more people.	**Businesses do not make as much money** Rising costs of inputs can lead to higher production costs, which can reduce profitability and production if businesses cannot pass these costs onto consumers.

Activity 8.1 Understanding the Effect of Inflation on GDP

Instructions

In this activity, you will explore how changes in inflation can affect a country's Gross Domestic Product (GDP) and how inflation impacts the economy.

1. Use the internet to find the inflation rates for Ghana in 2021, 2022, and 2023 from reliable sources such as the Ghana Statistical Service, national budgets, newspapers, the World Bank, and the IMF.

2. Record the inflation rate for each year (2021, 2022, and 2023).

3. Search for and record the GDP of Ghana for 2021, 2022, and 2023. This data can also be found on the Ghana Statistical Service website or from international sources like the World Bank or IMF.

4. Create two bar charts to COMPARE the inflation rate and GDP for Ghana in 2021, 2022, and 2023.

   • Use the horizontal or x-axis for the year and start at 2020.

   • Make sure each bar is the same thickness for each chart, 2cm would be fine.

   • Choose your own scale for the y-axis for each chart and start at a number just below the data for 2021.

   • Ensure your axes have **equal divisions** to maintain consistency and readability.

   • Clearly label the x-axis with the years and the y-axis with the relevant units (percentage for inflation rate and currency units for GDP)

   Finally provide a title for each chart to clearly indicate what it represents (e.g., "Inflation Rate in Ghana (2021-2023)" and "GDP in Ghana (2021-2023)").

5. Compare the graphs for the years 2021, 2022, and 2023. Write the trends you will observe.

6. **Answer the Following Questions**:

   a. How did the inflation rate in Ghana change from 2021 to 2023?

   b. What happened to Ghana's GDP in the same period? Did it increase, decrease, or stay the same?

   c. Based on what you observed, how do you think inflation affected GDP in Ghana? Do higher inflation rates seem to reduce GDP, or does the relationship seem different?

   d. Write two positive and two negative effects of inflation on the economy of Ghana.

   e. How would you explain the effect of inflation on the economy to the people of Ghana?

   f. What advice would you give to the government on controlling inflation to help the economy grow?

7. Prepare a report on your findings and present it to the class for discussion and feedback.

Unemployment

Unemployment occurs when qualified people who want to work cannot find jobs. In Ghana, like in other countries, changes in the level of unemployment can have a great effect on the country's economy and its Gross Domestic Product (GDP).

When unemployment is high, it means many people are not working. This can harm the economy because people will not have money to spend, and businesses will sell less. When businesses sell less, they may produce less, and the economy may shrink. As a result, the GDP can decrease because fewer goods and services are being made and sold.

When unemployment is low, it means more people are working and earning money. This is good for the economy because people can buy things, and businesses may produce more products. This can help the economy grow, leading to a rise in GDP.

Figure 8.2: Images depicting Unemployment

Effects of Unemployment on the Economy

Table 8.2: Comparing the Negative and Positive Effects of Unemployment

Negative Effects	Positive Effects
Reduced Consumption: Less income leads to decreased consumer spending and lower economic output.	**Wage Adjustments:** Labour surplus can lower wages. Reduced labour costs for businesses, improves competitiveness and profitability.
Lower Investment: High unemployment decreases business confidence and reduces investments in capital and innovation.	**Resource Reallocation**: Resources (including labour) can shift to more productive sectors during economic downturns.
Lost Productivity: Represents a loss of productive potential in the economy, leading to decreased efficiency and growth potential.	**Encourages Education and Skill Development**: Unemployment can push people to go back to school or learn new skills to improve their chances of getting a better job in the future.
Decreased Tax Revenues: Fewer people employed result in lower tax revenues, and this means the government has less to spend on health education and roads.	
Increased Government Spending: Higher spending on social safety nets to provide money for people who cannot afford basic essentials like food, strains public finances and leads to higher costs and debt.	

Activity 8.2 Analysing Unemployment Statistics by Sector in Ghana

Objective: To compare unemployment statistics by sector for 2022 and 2023 and create pie charts to visualise the data.

Data Provided

1. **2022 Unemployment by Sector in Ghana**

   - Agriculture: 5.2%

   - Manufacturing: 7.5%

   - Services: 10.3%

   - Construction: 8.1%

   - Other: 4.0%

2. **2023 Unemployment by Sector in Ghana**

- Agriculture: 4.8%
- Manufacturing: 6.9%
- Services: 9.7%
- Construction: 7.5%
- Other: 3.5%

Instructions

1. **Analyse the Data in the following way**

   a. Compare the unemployment rates for each sector between 2022 and 2023.

   b. Identify which sectors saw an increase or decrease in unemployment rates.

2. **Create Pie Charts**

   a. Use the data to create two pie charts: one for 2022 and one for 2023.

   b. Each pie chart should represent the distribution of unemployment by sector for that year. To draw your chart, you will have to convert each % to an angle by adding all the %s up to find a total then dividing each % by that total and multiplying by 100 to find the % for each sector of your pie chart. **Round up** your percentages to whole numbers.

   c. Label the sectors and add a title to your charts.

3. **Complete a written Comparative Analysis**

   a. Write a short paragraph comparing the unemployment rates by sector between the two years.

   b. Discuss any trends or significant changes you observe with your friend or someone at home.

   c. You should find that in 2023, the unemployment rate in Ghana decreased in all sectors compared to 2022. Compare this trend with the change in GDP in Ghana over the two years. Add your findings to your written analysis

Exchange Rate

The exchange rate is the value of a country's currency (Ghana Cedi), compared to other currencies like the US Dollar or the Euro. Changes in the exchange rate can affect the economy of Ghana and its GDP (Gross Domestic Product) in different ways.

When the Ghana Cedi is strong (that is, it is worth more compared to other currencies), goods made in Ghana become more expensive for other countries to buy. This can reduce exports (products sold to other countries), which may hurt businesses in Ghana

and lower GDP. On the other hand, imports (goods bought from other countries) become cheaper, which may increase the amount of goods Ghana buys from different countries.

When the Cedi is weak (that is, it is worth less compared to other currencies), goods made in Ghana become cheaper for other countries to buy. This can increase exports, which helps Ghana's businesses grow and can lead to a rise in GDP. However, imports become more expensive, which might lead to higher prices for things like fuel, food, or other products that Ghana imports.

Figure 8.3: *Image depicting Exchange Rate*

Effects of a Weak Currency on Exchange Rate (Exchange rate depreciation)

Positive Effects	Negative Effects
Boosts Exports: A weak currency makes Ghana's goods cheaper for other countries, so more people may want to buy products from Ghana, thus increasing exports.	**Makes Imports More Expensive**: A weak currency makes it more costly to buy things from other countries, such as fuel, food, and technology, leading to higher prices and inflation.
Increases Tourism: Foreign visitors can find it cheaper to travel to Ghana, which may bring in more tourists and help the economy to grow.	**Uncertainty for Businesses:** Weaker exchange rates make it harder for businesses to plan and invest because they cannot calculate profits or pricing strategies.

Helps Local Businesses to Compete: Ghanaian businesses can sell their products at lower prices abroad, making them more competitive in international markets.	**Increases Debt**: If the government or businesses borrow money in foreign currencies, they have to pay back more because the local currency is weaker, making debt difficult to repay.
Encourages Foreign Investment: A weaker currency can attract foreign companies to invest in Ghana because it becomes cheaper for them to do business in the country.	**Reduces the Standard of living**: When prices of everyday goods go up due to a weak currency, it can make life harder for people, especially those with lower incomes, as they cannot afford as much.
	Loss of Foreign Money: Investors providing money for infrastructure projects or industrial development might move their money out of the country to avoid losses from as the currency gets weaker.

Effects of a Strong Currency on Exchange Rate (Exchange rate appreciation)

Positive Effects	Negative Effects
Lower inflation: A strong currency keeps inflation down because it is cheaper for Ghana to buy imported goods and services from other countries, like fuel, food, and technology.	**Reduces Export Competitiveness:** Domestic goods made in Ghana become more expensive abroad so countries buy then from somewhere else decreasing export volumes.
Increased Consumer Purchasing Power: People and businesses have more money and can afford to buy more both at home and abroad.	**Trade Deficit:** If Ghana imports more than it exports this can lead to a trade deficit. This means that more money flows out of the country than comes in making the economy weaker.
Reduces cost of Foreign Debt repayments: If Ghana owes money in foreign currencies, a strong Cedi means it costs less to pay back those loans.	**Slows Economic Growth**: If there is less demand for products made in Ghana abroad, it can lead to a slower-growing economy, shown by lower GDP figures.
Improves Foreign Investment: A strong currency can make Ghana appear more stable to foreign investors, which can lead to more investment in businesses and infrastructure.	**Increases Unemployment:** cheaper imports put more pressure on businesses in Ghana and some may have to reduce their workforce, leading to higher unemployment.
Lower Production Costs: For businesses that rely on imported raw materials, a stronger currency reduces production costs, potentially increasing profitability.	**Lower Tourism:** Ghana becomes a more expensive destination for foreign tourists who may decide not to come and spend their money to boost the economy.

Activity 8.3 Effect of a Weak and Strong Currency on Ghanaian Economy

Instructions

This activity will help you to understand how changes in the exchange rate of the Ghanaian cedi to the US dollar can impact the economy.

1. Use the internet to search the exchange rate of the Ghanaian cedi (GHS) to the US dollar (USD) for the past three years (2019, 2020, and 2021). Trusted sources include the Bank of Ghana, XE (Xchange Express), and OANDA (Online and Direct Access).

2. Record the exchange rate for each year (2019, 2020, and 2021). For example: 2019: 1 USD = GH¢ 5.6

3. Create a simple graph that shows how the exchange rate of the Ghanaian cedi to the US dollar changed from 2019 to 2021. To create a simple graph showing how the exchange rate changed over these years, a line graph would be the best choice. It clearly illustrates trends over time.

   - Use the horizontal or x-axis for the year and start at 2018.

   - Choose your own scale for the y-axis for each chart and start at a number just below the data for 2019.

   - Ensure your axes have equal divisions to maintain consistency and readability.

   - Clearly label the x-axis with the years and the y-axis with the relevant units

   Finally provide a title for each chart to clearly indicate what it represents (e.g., "Exchange Rate in Ghana (2019-2021)").

4. Compare how the exchange rates have changed each year. Note that an increase in the exchange rate means the cedi has weakened and vice versa.

5. Consider the effects of a weak vs. strong Ghanaian cedi on the prices of goods that Ghana imports or exports and answer the following questions:

   a. What trend (up, down or stayed the same) did exchange rates between the Ghanaian cedi and the US dollar follow from 2019 to 2021?

   b. When the cedi is weak (higher exchange rate), how might this have affected the cost of imports in Ghana?

   c. When the Cedi is strong (lower exchange rate), how might this have affected Ghanaian exports?

   d. Do you think a weak currency is always bad for the economy? Explain your answer.

   e. How would you explain the effect of a weak or strong currency on people in Ghana?

f.   What advice would you give to the government to help manage the exchange rate to benefit the economy?

6.   Prepare a PowerPoint presentation with your findings. Present this to the class for discussion and feedback.

CONTROL POLICIES

Control policies are actions that a government or central bank takes to manage the economy and keep it stable. These policies can control things like inflation, unemployment, and economic growth. The two main types of control policies are monetary policies (which involve controlling the money supply and interest rates) and fiscal policies (which involve government spending and taxation).

1.   **Monetary policies**

Monetary policies are actions taken by a country's central bank (e.g., Bank of Ghana) to control the supply of money and interest rates in the economy. By changing interest rates or the amount of money in circulation, the central bank tries to control inflation, encourage spending, and keep the economy stable. There are two main types of monetary policy:

a.   **Expansionary Monetary Policy** is when the central bank lowers interest rates or increases the money supply to encourage people to borrow, spend, and invest more, helping to boost the economy.

b.   **Contractionary Monetary Policy** is when the central bank raises interest rates or reduces the money supply to slow down spending and control inflation in the economy.

2.   **Fiscal Policy**

Fiscal Policy is when the government uses its spending and taxation to influence the economy, aiming to control factors like inflation, unemployment, and economic growth. There are two main types of fiscal policy:

a.   **Expansionary Fiscal Policy** is when the government increases its spending and/or cuts taxes to boost the economy, especially when it is slowing down or in a recession. This encourages people to spend and businesses to invest more.

b.   **Contractionary Fiscal Policy** is when the government reduces its overall spending and/or raises taxes, usually to control inflation when it is growing too fast.

3.   **Exchange-Rate Policy**

Exchange Rate Policy is a government's strategy to control the value of its currency relative to other currencies, affecting trade and investment. There are different approaches to exchange rate policy:

a. **Fixed Exchange Rate** is when a country's currency is tied to another currency, like the US Dollar, and stays at a set value.

b. **Floating Exchange Rate** is when a country's currency value is determined by market forces (supply and demand) and can change freely.

c. **Managed Float** is a mix where a currency mostly floats but the government occasionally steps in to influence its value if needed. Ghana's situation is mostly a managed float because market forces usually determine the exchange rate, and the central bank occasionally intervenes to stabilise the exchange rate.

4. **Trade Policy**

Trade Policy refers to the rules and laws a country uses to manage trade with other countries, deciding what can be imported and exported, and how it is taxed. These can include:

a. **Tariffs:** These are taxes that a country charges on goods from other countries, making them more expensive, thus encouraging people to buy locally produced goods and services.

b. **Quotas:** These are limits set by a country on how much of a certain product can be imported from other countries, to protect local businesses.

c. **Trade Agreements:** They are deals between countries to agree on the terms of trade, like how much they can import and export and what tariffs or rules will apply.

5. **Income Policy**

Income Policy refers to government actions aimed at controlling how much people earn and how much businesses charge for goods and services to prevent high inflation. These can include:

a. **Wage and Price Controls:** They are government rules that set limits on how much wages (salaries) and prices for goods and services can increase, to keep inflation low.

b. **Indexation Policies:** These are rules that automatically adjust wages, pensions, or taxes based on inflation, so people's income is not affected by rising prices.

## Activity 8.4 Exploring Control Policies in Ghana

Instructions

This activity will help you to understand the control policies used in Ghana and how these policies affect inflation, the exchange rate, and unemployment.

1. Using the internet or your textbook, list three control policies used by the Bank of Ghana to manage the economy, such as monetary policy.

2. Choose two policies from the list you made in 1 and describe how they work.

3. Think about how these control policies impact the economy and answer the following questions:

    a. What are the three main control policies used in Ghana?

    b. Explain two of these policies in detail.

    c. How do these policies affect inflation, exchange rate, and unemployment in Ghana?

    d. How do these control policies affect people like you and your family? Think about the price of food, fuel, and jobs.

4. Prepare your report with your findings. The report should not be more than one page.

5. Present this to the class for discussion and feedback.

INTRODUCTION AND CALCULATION OF NATIONAL INCOME USING THE PRODUCT APPROACH
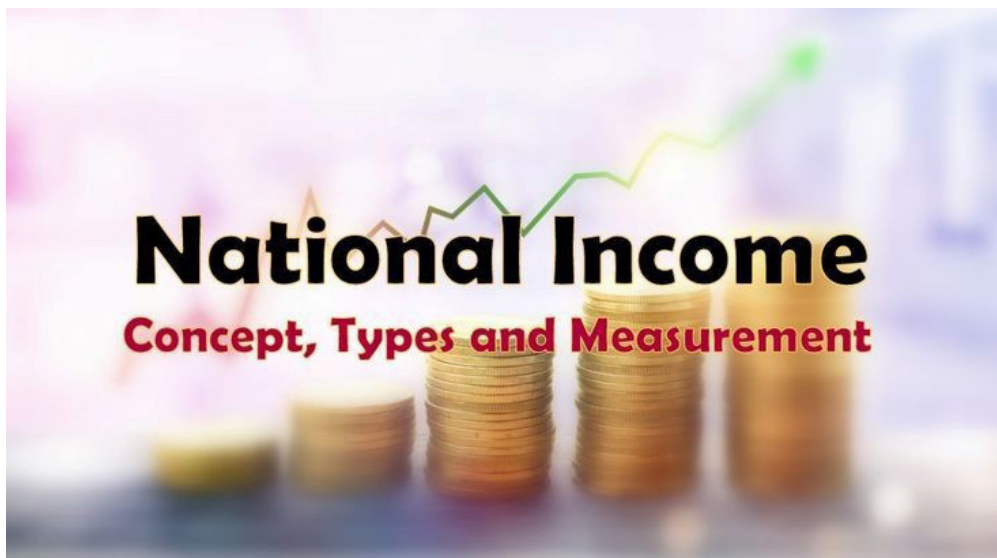
National Income

National income is the total value of all the goods and services produced in a country over a specific period, usually a year. In Ghana, it helps to measure the country's overall economic activity and shows how well the economy is performing. It includes factors like the income people earn from their jobs, profits businesses make, and taxes collected by the government. National income is important because it helps the government to make decisions about spending, taxes, and how to improve the country's economy. National income can be calculated in several ways, including:

1. **Gross Domestic Product** (GDP) is the total value of all goods and services produced within a country's borders in a specific period, usually a year.

2. **Gross National Product** (GNP) is the total value of all goods and services produced by a country's residents, both inside and outside the country. It is calculated by adding GDP to the net income from abroad (income from foreign investments minus payments to foreign investors).

3. **Net National Product** (NNP) is the total value of goods and services produced by a country's residents, after subtracting the depreciation (wear and tear) of capital goods. It is GNP minus depreciation.

4. **National Income** (NI) is the measure of NNP that excludes indirect taxes (like sales tax) and includes subsidies (NNP minus indirect taxes plus subsidies; thus NNP − indirect tax + subsidies).

National Income can be calculated using three methods: the product (or output) approach, the income approach, and the expenditure approach.

Activity 8.5 Understanding National Income

Instructions

This activity will help you to understand national income and how countries, like Ghana, calculate national income using the product, the expenditure, and the income approach.

1. Think of five examples of things you use or consume (for example, food, clothing, transportation).

    a. Where do you think the money spent on these items goes?

    b. Does it contribute to the national income? Why?

    For example, if you buy a loaf of bread, the money paid to the bakery helps the bakery earn income, the sales tax charged than contributes to the national income of the country.

2. Think of a local business (for example, a cocoa farm or a bakery shop) and discuss how each of the three methods of calculating national income would work for that business.

    a. How would you measure the national income from this business using the product approach? Focus on the values of the products they produce or sell.

    b. How would you measure the national income from this business using the expenditure approach? Focus on how much money people spend on their business.

    c. How would you measure the national income from this business using the income approach? Focus on the money workers and business owners receive.

3.   Create a simple poster or infographic that shows the three ways to calculate national income (product, expenditure, and income) using examples from Ghana.

4.   Prepare a short report on your findings using text, audio recording, or PowerPoint presentation.

5.   Compare your findings with your friend in the class.

The next part of section 8 will explain how to calculate National Income by using the Product Approach. The product approach is often called the output approach by economists because the method emphasises the output or production side of the economy.

APPLYING THE PRODUCT APPROACH TO DATA FOR GHANA

The product approach (output approach) looks at the total value of all the goods and services produced in a country. In other words, it measures the monetary value of products a country makes in a year, whether it is food, cars, clothes, or even services like teaching or healthcare. It focuses on the output or production generated by various sectors (primary, secondary, and tertiary) of the economy.

Consider the data below that represents a range goods and services produced in Ghana:

Items	Amount (Gh¢)
Cocoa Beans	1,000,000
Gold Mining	2,500,000
Limestone for making cement	200,000
Cement Manufacturing	800,000
Cocoa Processing	1,200,000
Retail Trade	1,000,000
Transportation Services	600,000
Income from foreign investments	450,000
Payments to foreign investors	380,000
Depreciation (consumption of fixed capital)	100,000
Indirect taxes	150,000
Subsidies	180,000

Follow the steps below to calculate national income by using the product approach.

Step 1: Identify and Classify Production into sectors

Agriculture	Mining and Manufacturing	Services
Cocoa Beans (raw material for processing)	Gold Mining	Retail Trade
	Limestone for making cement	Transportation Services
	Cement Manufacturing	
	Cocoa Processing	

Step 2: Add up the value of what each sector produces

The gross value of output is simply the total value of goods and services produced in each sector. Based on the table, the gross output for each sector is as follows:

1. Agriculture Sector: Cocoa Beans = Gh1,000,000

2. Mining and Manufacturing Sector:

	Gh₵
Gold Mining	2,500,000
Limestone for making cement	200,000
Cement Manufacturing	800,000
Cocoa Processing	1,200,000
	4,700,000

3. Services Sector:

	Gh₵
Retail Trade	1,000,000
Transportation Services	600,000
	1,600,000

Step 3: Calculate Intermediate Consumption

Intermediate goods are products used in the production of other goods. These are not included in the final output because they are used up during the production process so need to be subtracted.

From the table, intermediate goods are Limestone for making cement (Gh₵ 200,000) and Cocoa Beans (Gh₵ 1,000,000)

The value of intermediate goods used in production is Gh₵ 1,200,000 in total (200,000 + 1,000,000).

Step 4: Subtract Intermediate Consumption from Gross Output (Gross Value Added)

To calculate the Gross Value Added (GVA) for each sector, subtract the value of intermediate goods from the gross value of output:

Mining and Manufacturing Sector

Cement Manufacturing

Gross Output: Gh₵ 800,000

Intermediate Consumption: Gh₵ 200,000 (for limestone used in cement)

GVA for Cement Manufacturing: 800,000 - 200,000 = Gh₵ 600,000

Cocoa Processing

Gross Output: Gh₵ 1,200,000

Intermediate Consumption: Gh₵ 1,000,000 (for cocoa beans used in processing)

GVA for Cocoa Processing: 1,200,000 - 1,000,000 = Gh₵ 200,000

Step 5: Sum the Gross Value Added (GVA)

Now, you add up the GVA from all sectors to get **the Gross Domestic Product (GDP)**

GDP = (GVA from Agriculture) + (GVA from Mining and Manufacturing) + (GVA from Services)

GDP = 1,000,000 + 2,500,000 + 600,000 + 200,000 + 1,000,000 + 600,000 = Gh₵ 5,900,000

Step 6: Add GDP to net income from abroad to get Gross National Product (GNP)

GNP = GDP + the net income from abroad (income from foreign investments minus payments to foreign investors)

GNP = 5,900,000 + (450,000 – 380,000)

GNP = 5,900,000 + 70,000

GNP = Gh₵ 5,970,000

Step 7: Subtract depreciation from GNP to get Net National Product (NNP)

NNP = GNP – Depreciation

NNP = 5,970,000 – 100,000

NNP = Gh₵ 5,870,000

Step 8: Adjust NNP with indirect taxes and subsidies to get National Income (NI)

National Income (NI) = NNP – Indirect Taxes + Subsidies

National Income (NI) = 5,870,000 – 150,000 + 180,000

National Income (NI) = Gh₵ 5,900,000

Activity 8.6 Calculating National Income Using the Product Approach

Materials Needed: (Pen and paper, a calculator (optional) and the data provided below).

Instructions

1. Study the data in the table to get an understanding. You are provided with the following data to calculate national income using the product approach:

Sector/Industry	Amount (GHS)
Agriculture	20,000,000
Manufacturing	30,000,000
Services	30,000,000
Construction	15,000,000
Energy (Electricity, gas, solar)	10,000,000
Subsidies	3,000,000
Indirect taxes	4,000,000
Income received from abroad	4,200,000
Income paid abroad	3,900,000
Depreciation	2,200,000

(Note that **income paid abroad** is the earnings generated by foreign factors of production, such as land, labour, and capital, that are located within the country AND **income received from abroad** refers to the earnings generated by factors of production, such as land, labour, and capital, that are located in other countries but are owned by residents of the home country.)

2. Identify the key components of the product approach. These include products of the sectors and indirect taxes.

3.   Add the values of final goods produced by all sectors to get the gross domestic product (GDP). That is, GDP = (Agriculture + Manufacturing + Services + Construction + Energy)

4.   Add GDP to net income from abroad to get Gross National Product (GNP). That is, GNP = GDP + the net income from abroad (income received from abroad – income paid abroad).

5.   Subtract depreciation from GNP to get Net National Product (NNP). That is NNP = GNP – Depreciation

6.   Adjust NNP by subtracting indirect taxes and adding subsidies to get National Income (NI). That is, National Income (NI) = NNP – Indirect Taxes + Subsidies.

7.   Record your findings in your exercise book or Microsoft Word.

8.   Share your findings with your friends in class.

CALCULATION OF NATIONAL INCOME USING EXPENDITURE AND INCOME APPROACH

Expenditure Approach

To calculate national income using the expenditure approach looks at how much money is spent on goods and services in an economy. It adds up all the spending by households, businesses, the government, and foreigners (through exports) to find the total value of a country's production. This approach focuses on the total spending on final goods and services. The expenditure approach involves:

1.   Consumption (C): This is the money people (households) spend on goods and services, like food, clothes, and entertainment.

2.   Investment (I): This is the money businesses or people spend on things like new factories, equipment, or land to help make more goods in the future.

3.   Government Spending (G): This is the money the government spends on things like schools, roads, hospitals, and security to help the country run smoothly.

4.   Net Exports (X - M): This is the difference between the money a country earns from selling goods to other countries (exports) and the money it spends buying goods from other countries (imports).

Consider the following data for National Income Calculation (Expenditure Approach)

Items	Amount (in Gh¢)
Household Consumption (C)	4,000,000

Business Investment (I)	1,500,000
Government Spending (G)	2,000,000
Exports (X)	1,200,000
Imports (M)	800,000
Income from foreign investments	620,000
Payments to foreign investors	500,000
Consumption of fixed capital	200,000
Subsidies	220,000
Indirect Taxes	180,000

Steps to Calculate National Income using the Expenditure Approach

Step 1: Add all the spending in the country during the period

Gross Domestic Expenditure (GDE) = Household Consumption (C) + Business Investment (I) + Government Spending (G) + (X - M)

GDP = 4,000,000 + 1,500,000 + 2,000,000 + (1,200,000 – 800,000)

GDP = **Gh₵ 7,900,000**

Step 2: Adjust for Depreciation (D) to arrive at Net Domestic Expenditure (NDE). Subtract depreciation to account for the consumption of fixed capital.

Net Domestic Expenditure (NDE) = GDE – D

NDE = 7,900,000 – 200,000

NDE = Gh₵ 7,700,000

Step 3: Add Net Foreign Factor Income to NDE to get Net National Expenditure (NNE).

Net National Expenditure (NNE) = NDE + Net factor income from abroad

Net National Expenditure (NNE) = 7,700,000 + (620,000 – 500,000)

NNE = Gh₵ 7,820,000

Step 4: Subtract Indirect Taxes (T) and Add Subsidies (S) to arrive at the National Income (NI).

Net National Expenditure (NNE) = NNE – T + S

Net National Expenditure (NNE) = 7,820,000 – 180,000 + 220,000

Net National Expenditure (NNE) = **Gh₵ 7,860,000**

The national income is simply calculated as:

$NI = GDP - Depreciation + Net\ Foreign\ Factor\ Income - Indirect\ Taxes + Subsidies$

NI = 7,900,000 – 200,000 + (620,000 – 500,000) – 180,000 + 220,000

NI = **Gh₵ 7,860,000**

The national income from the table above is **Gh₵ 7,860,000**

Activity 8.7 Calculating National Income Using the Expenditure Approach

Materials Needed: (Pen and paper, a calculator (optional), and the data provided below)

Instructions

1. Go through the table to understand the data in it. You are provided with the following data to calculate national income using the expenditure approach:

Item	Amount (GHS)
Consumption (C)	40,000,000
Investment (I)	20,000,000
Government Spending (G)	15,000,000
Net Exports (Exports - Imports)	10,000,000
Net Factor Income from Abroad	(2,000,000)
Consumption of Fixed Capital	1,500,000
Indirect Taxes	4,000,000
Subsidies	(5,000,000)

2. Identify the key components of the expenditure approach. Key components include consumption (C), investment (I) and subsidies (S).

3. Identify and classify production into sectors (that is, Agriculture, Manufacturing and Services).

4. Add the Gross Values of expenditure items to get gross domestic expenditure (GDE). That is, consumption(C) + investment (I) + government spending (G) + (export (X) – import (M))

5. Add GDE to net income from abroad to get Gross National Expenditure (GNE). That is, GNE = GDE + the net income from abroad (income from abroad – income paid abroad)

6. Subtract depreciation from GNE to get Net National Product (NNE).

   That is, NNE = GNE – Depreciation

7. Subtract indirect taxes and add subsidies to NNE to get National Income (NI)

8. National Income (NI) = NNP – Indirect Taxes + Subsidies

9. Now answer the following questions:

   a. How did the net factor income from abroad affect the national income calculation?

   b. Why do you subtract subsidies from the indirect taxes?

   c. What is the significance of consumption of fixed capital in the national income calculation?

10. Record your findings in your exercise book or Microsoft Excel.

11. Share your findings with your friends in class.

INCOME APPROACH

To use the income approach to calculate national income, look at how much money people earn in an economy. It adds up all the income earned from jobs, businesses, and other sources, like wages, profits, and taxes in a country.

How to Use the Income Approach to Calculate National Income

Consider the following data for National Income Calculation (Income Approach)

Item	Amount (in Gh₵)
Wages and Salaries (Income from work)	3,000,000
Profits of Businesses	2,500,000
Rental Income (Income from land or property)	1,000,000
Interest Income (Earnings from savings or investments)	500,000
Taxes on production and imports (e.g., VAT, excise duties)	1,200,000

Subsidies on products or services (government subsidies)	200,000
Depreciation	250,000
Income from foreign investments	290,000
Payments to foreign investors	300,000

Step 1: Identify and Classify Income Sources (Identify the various sources of income that contribute to the national income).

1. Wages and Salaries: This refers to the income people receive from their jobs. For example, if people in Ghana earned a total of Gh₵ 3,000,000 in wages, it would be added to the national income.

2. Profits of Businesses: The total profits businesses make (after paying expenses). From the table above, the profits of businesses are Gh₵ 2,500,000.

3. Rental Income: People who own land or property receive income from renting it out. Suppose this income is Gh₵ 1,000,000.

4. Interest Income: People also earn money from savings or loans (interest). For example, Gh₵ 500,000 from interest might be earned.

   Total income = 3,000,000 + 2,500,000 + 1,000,000 + 500,000 = Gh₵ 7,000,000

Step 2: Adjust for Indirect Taxes and Subsidies: Add indirect taxes (such as sales tax, and excise tax) of Gh₵ 1,200,000 and subtract subsidies of Gh 200,000 to adjust the income figures to reflect the market prices of goods and services.

National income = 7,000,000 + 1,200,000 - 200,000 = Gh₵ 8,000,000

Step 3: Adjust for Depreciation (Consumption of Fixed Capital): Subtract depreciation of Gh₵ 250,000 to account for the loss of value of capital assets over time.

National income = 8,000,000 - 250,000 = Gh₵ 7,750,000

Step 4: Adjust for Net Factor Income from Abroad: Include the net income earned from abroad, which is the difference between income earned by residents from overseas investments and income earned by foreigners from domestic investments.

National income = 7,750,000 + (290,000 – 300,000)

National income = 7,750,000 – 10,000

National income = Gh₵ 7,740,000

Therefore, the formula for calculating national income (NI) using the income approach can be summarised as:

$NI = Compensation\ of\ employees + Rents + Profits + Interest + Indirect\ Taxes - Subsidies - Depreciation + Net\ Factor\ Income\ Abroad$

From the table above:

National Income (NI) = 3,000,000 + 1,000,000 + 2,500,000 + 500,000 + 1,200,000 - 200,000 - 250,000 + (290,000 – 300,000)

National Income = **Gh₵ 7,740,000**

Activity 8.8 Calculating National Income Using the Income Approach

Materials Needed: (Pen and paper, a calculator (optional) and the data provided below)

Instructions

1. Study the data in the table to get an understanding. You are provided with the following data to calculate national income using the product approach:

Items	Amount (GHS)
Wages and Salaries	50,000,000
Rent	10,000,000
Interest	5,000,000
Profits	15,000,000
Depreciation	1,000,000
Income paid abroad	2,500,000
Income from abroad	3,000,000
Indirect Taxes	7,000,000
Subsidies	(2,000,000)

2. Identify the key components of the income approach. For example, rent, interest and income received from abroad

3. Identify the various sources of income that contribute to the national income and add them to get GDP (That is, GDP = wages and salaries + rent + interest + profits).

4. Add net factor income from abroad to GDP to arrive at GNP (That is, GNP = GDP + Net factor income from abroad).

5. Subtract depreciation from GNP to get NNP (That is, NNP = GNP - D).

6. Add indirect taxes and subtract subsidies to arrive at the final national income (NI = NNP + Indirect taxes - Subsidies).

7. Record your findings and compare them to friends' work in the class.

Uses of National Income

National income has several key uses. It is used for economic planning, policymaking, and assessing a country's economic performance, living standards, investment trends, international economic relations, and sectoral contributions.

1. **Economic Planning and Policy Making**: National Income data helps governments create budgets and allocate resources efficiently. It also guides the development of monetary, fiscal, and trade policies.

   Example: The Ghanaian government uses national income data to create the Ghana Shared Growth and Development Agenda (GSGDA), which outlines policies to boost economic growth and development.

2. **Measuring Economic Performance**: National Income evaluates a country's economic growth rate and allows comparison with other countries' performances.

   Example: Ghana monitors its GDP growth rates to evaluate economic performance. For instance, the government assesses whether growth targets are met and compares performance with other West African countries.

3. **Standard of Living Assessment**: National Income assesses average income per person (per capita income), indicating the standard of living and highlighting income inequality within the country.

   Example: By analysing per capita income, Ghana can assess the standard of living across different regions, helping to identify areas needing targeted social interventions and development programs.

4. **Investment and Savings**: National Income influences both public and private sector investment decisions and monitors the savings rate, crucial for future investment and growth.

   Example: National income data helps the Ghanaian government and private sector identify trends in savings and investments. This information is used to encourage investments in key sectors like agriculture, mining, and technology.

5. **International Economic Relations**: National Income data is used to determine eligibility and needs for foreign aid and loans. It also helps in formulating international trade policies and agreements.

   Example: Ghana's national income data is critical when applying for international loans and aid. Organisations like the IMF and World Bank use this data to evaluate Ghana's economic health and creditworthiness.

6. **Sectoral Analysis**: National Income is used to evaluate the performance of various sectors like agriculture, manufacturing, and services. It aids in the effective allocation of resources among different sectors.

   Example: By examining the contributions of various sectors to national income, Ghana can focus on boosting the performance of its cocoa industry, which is a significant part of the economy, as well as other sectors like oil and gold mining.

The Importance of National Income

National income is important because it provides a comprehensive measure of a country's economic health and stability. It guides government policy, supports economic planning, and helps work out living standards.

1. **Indicator of Economic Health:** National Income shows how healthy and stable the economy is. It helps to watch and control prices going up or down. *Example*: Ghana uses national income data during tough times or fast growth to see if the economy is getting better or worse.

2. **Employment Generation:** National income is linked to creating jobs and how much people get paid. *Example*: Growth in national income in Ghana, especially from oil, has created jobs and reduced unemployment, especially for young people.

3. **Social and Economic Policies:** National Income helps to plan and fund social programs and improve public services like healthcare and education. *Example*: Ghana uses national income to support programs like the National Health Insurance Scheme (NHIS) and Free Senior High School (SHS) to improve access to healthcare and education.

4. **Economic Stability and Growth:** National Income helps keep the economy stable and supports long-term growth. *Example*: Continuous national income growth has helped Ghana stay stable and work on long-term goals, like the "Ghana Beyond Aid" vision.

5. **Public and Private Sector Decision Making:** National income provides important information for business and government planning. *Example*: Businesses in Ghana use national income data to decide on expansion, and the government uses it to plan projects like roads and energy facilities.

6. **Taxation and Revenue:** It helps design effective tax policies and ensures the government has enough money for spending. *Example*: The Ghana Revenue Authority (GRA) uses national income data to create tax policies and collect revenue efficiently, which funds public services and development projects.

Activity 8.9 "National Income Explorer"

Instructions: Answer these questions

1. What is national income and why is it an important indicator of economic health?

   • Describe the significance of national income in monitoring and controlling inflation and deflation.

2. How does national income help in formulating economic policies in Ghana?

   • Provide examples of how the Ghanaian government uses national income data for budgeting and resource allocation.

3. In what ways does national income influence employment rates and job creation in Ghana?

   • Give examples of how growth in national income has impacted job opportunities, especially in sectors like oil production.

4. How does national income data help in assessing the standard of living in different regions of Ghana?

   • Discuss how per capita income is used to identify areas needing social interventions and development programs.

5. What role does national income play in shaping social and economic policies in Ghana?

   • Explain how national income supports programs like the National Health Insurance Scheme (NHIS) and Free Senior High School (SHS).

6. Why is national income crucial for maintaining economic stability and supporting long-term growth in Ghana?

   • Illustrate how continuous growth in national income has contributed to Ghana's economic stability and initiatives like "Ghana Beyond Aid."

7. How do businesses and the government in Ghana use national income data for strategic decision-making?

   • Provide examples of how national income statistics influence decisions on business expansion and public sector projects.

8. In what way does national income help in designing effective tax policies and ensuring sufficient public revenue in Ghana?

   • Discuss how the Ghana Revenue Authority (GRA) uses national income data for efficient revenue collection.

9. How does national income data assist Ghana in its international economic relations and securing foreign aid?

   • Explain the importance of national income data for evaluating Ghana's eligibility for international loans and aid.

10. **Research Area**: Choose one sector (e.g., agriculture, mining, or technology) and investigate how changes in national income have impacted its development in Ghana.

    • Present findings on how national income growth has influenced investment, employment, and overall sector performance.

Take turns to compare your answers with a friend who has also completed the questions. What did you learn? Would you improve any of your answers?

EXTENDED READING

- https://www.worldometers.info/gdp/what-is-gdp/

- https://corporatefinanceinstitute.com/resources/economics/gross-domestic-product-gdp/

- https://corporatefinanceinstitute.com/resources/economics/exchange-rate/

- https://www.mytutor.co.uk/answers/19078/GCSE/Economics/What-are-the-main-macroeconomics-variables/

1. In Ghana, the government and policymakers are concerned about how changes in key macroeconomic variables like inflation, unemployment, and exchange rates affect the country's Gross Domestic Product (GDP). The GDP represents the total value of all goods and services produced within Ghana's borders, and it reflects the overall health of the economy. Policymakers aim to ensure that inflation is stable, unemployment is low, and exchange rates support the country's exports and imports to achieve sustainable economic growth. Ghana has been experiencing changes in inflation, unemployment, and exchange rates, and the government needs to understand how these factors impact GDP.

   a. What is GDP, and why is it important for a country?

   b. Explain what inflation means in simple terms and how it affects the prices of goods and services in an economy.

   c. Explain two (2) positive and two (2) negative effects of inflation on GDP.

   d. Examine the effect of changes in the unemployment rate on GDP.

   e. Analyse the effect of a change in inflation on GDP.

   f. Analyse the impact of rising unemployment on Ghana's GDP.

2. Ghana's economy faces several challenges, including inflation, high unemployment rates, and fluctuations in the exchange rate. To address these challenges, the government and the central bank implement control policies aimed at stabilising the economy and promoting sustainable growth. These policies include monetary policies, fiscal policies, exchange-rate policies, trade policies, and income policies. The effectiveness of these policies depends on the current economic environment and the specific issues they are designed to address.

   a. List at least two types of control policies that could be implemented in Ghana to address inflation, unemployment, and exchange rate fluctuations.

   b. Describe how lowering interest rates and increasing the money supply can stimulate economic activity in Ghana and help reduce unemployment.

   c. Explain how increasing government spending or reducing taxes can boost demand in the economy and potentially reduce inflation in Ghana.

   d. Discuss the two (2) effects of different exchange rate policies (fixed, floating, or managed float) on Ghana's economy and how might changes in exchange rates affect inflation, trade, and the overall economy.

   e. Analyse how Ghana can use trade policies to stabilise its economy.

3. A small economy is working on calculating its National Income using the Product Approach to track the output of different sectors. The government

collects data on the value of goods and services produced in various sectors, taxes collected, subsidies given, depreciation, and net income from abroad.

a. What is National Income?

b. Describe the Product or Output Approach to calculating National Income **with real-world examples.**

c. The following represents the output data of the economy of the country. Use the information to answer the questions that follow.

Items	Amount Gh¢
Manufacturing	1700
Mining	860
Agriculture	720
Construction	420
Commerce	220
Utilities	320
Transport, storage and other services	620
Net factor income from abroad	380
Depreciation	200
Subsidies	220
Indirect Taxes	180

Work out the following using the Product Approach

i. Gross domestic product

ii. Gross national product

iii. Net national product

iv. National income

4. In this case study, you are tasked with calculating National Income (NI) using both the Income Approach and the Expenditure Approach. The government has provided data on variables contributing to income and expenditure in the economy

Variables contributing to income and expenditure	Amounts (Gh₵ million)
Corporate profits	7,400
Consumption of fixed capital (Depreciation)	3,900
Proprietor's (Self-employed) income	4,960
Compensation of employees	76,709
Rental income	4,500
Net interest	8,970
Gross domestic private investment	15,500
Personal consumption expenditure	40,660
Government consumption expenditure	10,780
Imports	6,900
Indirect taxes	5,000
Exports	3,110
Subsidies	3,900
income paid abroad	2,120
income received from abroad	2,740

a. Define the Income Approach and list the different sources of income that are included in the calculation.

b. Explain the Expenditure Approach and the components that are included when calculating National Income using this method.

c. Calculate the Gross Domestic Expenditure (GDE) using the Expenditure Approach.

d. Calculate the Gross National Expenditure (GNE) using the Expenditure Approach.

e. Calculate the Net National Expenditure (NNE).

f. Calculate the Gross Domestic Income (GDI) using the Income Approach.

g. Calculate the Net Domestic Income (NDI).

h. Calculate the Net National Income (NNI).

5. National income is an essential economic indicator that reflects a country's total economic activity. In Ghana, national income data plays a critical role in shaping policies and measuring the overall economic health. The government,

businesses, and international organisations use the national income to make important decisions that affect the country's growth, development, and economic stability.

Data and Information

- National income includes all income generated from goods and services produced in the country, such as wages, interest, rent, and profits.

- It is used to measure economic growth, assess the standard of living, plan investments, and understand sectoral performance.

- National income helps the government and businesses make informed decisions about policies, investments, and development projects in Ghana.

Questions

a. List and explain four different ways in which national income can be used by the government, businesses, or international organisations.

b. Identify and explain three ways national income helps to maintain the economic health and stability of a country.

c. Using Ghana's national income, illustrate five ways it can help improve social welfare programs.

Multiple Choice Questions

1. Which macroeconomic variable measures the total value of goods and services produced within a country?

   A. GDP

   B. GNP

   C. NNP

   D. PI

2. What is the term for the rate of change in the general price level?

   A. Inflation rate

   B. Deflation rate

   C. Unemployment rate

   D. Interest rate

3. Which macroeconomic variable represents the total amount of spending by households, businesses, government, and foreigners?

   A. National Income

   B. Aggregate Supply

   C. Aggregate Demand

   D. Gross Domestic Product

4. What is the term for a sustained increase in the general price level?

 A. Hyperinflation

 B. Deflation

 C. Stagflation

 D. Inflation

5. Which macroeconomic variable measures the number of unemployed individuals as a percentage of the labour force?

 A. Unemployment rate

 B. Inflation rate

 C. Poverty rate

 D. Labor force participation rate

6. What is the term for the total value of goods and services produced by a country's citizens, regardless of where they are produced?

 A. GDP

 B. PI

 C. NNP

 D. GNP

7. Which macroeconomic variable represents the total amount of goods and services produced at various price levels?

 A. Aggregate Demand

 B. National Income

 C. Aggregate Supply

 D. Gross Domestic Product

8. What is the term for a decrease in the general price level?

 A. Inflation

 B. Deflation

 C. Stagflation

 D. Hyperinflation

9. Which macroeconomic variable measures the total amount of spending by households on goods and services?

 A. Net Exports

 B. Investment

 C. Government Spending

 D. Consumption

10. What is the term for a situation where an economy experiences stagnant economic growth, high inflation, and high unemployment?

A. Deflation

B. Inflation

C. Stagflation

D. Hyperinflation

GOVERNMENT ECONOMIC POLICY AND TRADE

CONCEPT OF MONEY, FINANCIAL INSTITUTIONS, AND PUBLIC FINANCE

INTRODUCTION

Welcome to Section 9. Hope you are enjoying your lessons. Have you ever wondered why people keep money? In this section, you will learn the **reasons for holding money** and how this works in Ghana. People keep money for different reasons, like buying things, saving for emergencies, or investing for the future. Also, you will learn more about **taxes** (money that the government collects from people and businesses), the **different types of taxes**, like income tax and VAT, and why they are important for the country.

Finally, you will identify the **advantages and disadvantages of taxes on an economy**. Even though taxes help to fund important services like schools and hospitals, they are sometimes a burden on people and businesses.

KEY IDEAS

- People hold money for three main reasons: transactions (to buy goods and services), precaution (to save for emergencies), and speculation (to invest or take advantage of future opportunities).
- Taxation is based on principles such as fairness and the ability to pay, and there are different types of taxes, including direct taxes (like income tax) and indirect taxes (like VAT), which are classified based on how they are collected.
- The advantages of taxation include funding essential public services like education, healthcare, and infrastructure, which benefit society as a whole.
- The disadvantages of taxation can include placing a financial burden on individuals and businesses, potentially reducing their spending or investment, and sometimes discouraging work or productivity.

REASONS FOR HOLDING MONEY

Various reasons account for why organisations and people hold money. These reasons are based on some motives which can be classified or categorised into three main motives. These are the transaction motive, precautionary motive, and the speculative motive.

Figure 9.1: Picture of Cedi and Dolar notes as trading currencies for businesses in Ghana

Transaction Motive

The transaction motive for holding money is to **cover daily expenses**, business operations and immediate purchases. These include:

Daily expenses

People and organisations have certain daily expenses which are necessary for managing their day-to-day activities. For example, expenses on food, transportation and utilities make our daily life better and you cannot avoid them.

Business operation

Businesses hold money to be able to cover their day-to-day operational expenses. For example, payment of salaries, rent and supplies.

Immediate Purchases

People and organisations hold money for things that will happen in the near future. For example, tickets to a concert, movie, or sporting event happening soon or special occasions like weddings or birthday celebrations.

Precautionary Motive

The precautionary motive for holding money refers to keeping funds available to cover **unexpected expenses** or emergencies.

Unexpected expenses

People and organisations hold money as a result of some unforeseen circumstances that might happen to them. It is important to be prepared for things like unexpected car repairs, medical emergencies or job losses.

Business Contingencies

Businesses hold money so that they can meet certain unforeseen events. They hold money as a result of unexpected drops in sales or unexpected disruptions such as breakdown of equipment.

Economic Uncertainty

This refers to situations where the future economic outcomes are uncertain and unpredictable. People or organisations hold money to prepare for economic **volatility**. Here are some simple examples:

•   Farmers: Farmers keep money aside in case of drought to pay for irrigation projects if the expected rains don't come.

•   Businesses: During inflation, businesses hold extra funds to manage the increased costs of supplies and inputs, helping them to cope with rising prices.

Speculative Motive

People or businesses hold money so that they can take advantage of money-making investments. There are three speculative motives for holding money.

Investment Opportunities

People and businesses take advantage of potential investment opportunities to buy stocks at low prices.

Interest Rate Changes

People or businesses hold money in anticipation of future changes in interest rates when higher returns might be made in the future.

Market Timing

People or businesses hold money simply waiting for favourable conditions so that they can make large purchases or investments with the anticipation of maximising profit or returns.

Note: You can use the internet to research for more examples of the motives for holding money.

Activity 9.1

For this activity you should work with a partner.

1. In your pairs, discuss the three motives for holding money.

2. After your discussion decide on a definition for each motive and write it down in your notebook.

3. Read the following examples below which are all motives for holding money

    •   A real estate investor keeps cash ready just in case a property comes on the market at a bargain price.

    •   A person has cash in their wallet to buy food from a chop bar, bus fares, rent, and drinks.

    •   A person has a savings account with a few hundred cedis for emergency medical expenses.

    •   A business owner keeps money to pay workers and buy stock.

    •   A manufacturing company keeps cash to cover unexpected equipment breakdowns.

    •   A stock trader who keeps cash ready to invest when the market prices are lower will drop so they can buy shares at a lower price.

4. With your partner decide which motive each one is. Copy and fill in the table below.

Motive	Example

5. Think back to your discussion and add one example of your own to the table for each motive.

6. Present your findings to the class or produce a digital presentation to show you understand the motives for holding money.

THE ROLES OF FINANCIAL INSTITUTIONS IN AN ECONOMY

Financial institutions play very crucial roles in an economy where they facilitate the flow of money, provide services, supporting growth and stability within the economy.

The primary roles of financial institutions include intermediation, facilitating payment, providing liquidity, risk management, mobilising savings, economic stability and growth, financial inclusion, and provision of information.

Figure 9.2 *Picture of World Bank as a financial institution*

Roles of Financial Institutions

Intermediation

As a go-between for borrowers and savers, financial institutions collect savings from individuals and businesses and lend this fund to others who need capital. They allocate funds efficiently and ensure that the most productive investments are made.

Facilitating payments

By providing payment mechanisms, they operate check accounts, credit and debit cards and electronic systems which enable the economy to function smoothly. They ensure that payments are promptly and accurately executed by managing the process of clearing and settling transactions.

Providing liquidity

They offer credit lines and short-term loans and provide businesses with the needed cash to manage day-to-day emergencies and operations. They participate in financial markets and help maintain cash flows and allow for quick buying and selling of assets.

Risk Management

Financial institutions provide insurance against risk and help individuals to manage various risks such as health, life property and liability risks. They also offer products like futures, options and swaps that allow businesses to guard against price fluctuations and other financial risks.

Mobilising savings

Financial institutions encourage individuals to save by offering various types of savings which provide a pool of funds for investments. They help savers to earn returns on their investments by providing products such as mutual funds, retirement accounts and fixed deposits.

Economic stability and growth

Financial institutions are used by the central bank to influence interest rates and money supply to maintain economic stability.

Financial institutions support business development, entrepreneurship, and infrastructure projects (roads, buildings, utility networks) to foster growth by providing credits and financial services.

Financial inclusion

By offering accessible banking services, microfinance, and affordable credit options, financial institutions work towards including the all individuals in a population.

Provision of information

By collecting and providing credit information, financial institutions help to assess the creditworthiness of borrowers by providing valuable market insights and financial advice to aid businesses and investors in making informed decisions.

The role of financial institutions is vital to a country. In Ghana financial institutions support the economy by managing personal finances, providing loans and investment services to businesses, facilitating trade, and funding infrastructure projects, all of which contribute to large-scale economic growth.

Examples of Financial Institutions

The following are good examples of financial institutions: central banks, commercial banks, investment banks, Credit unions, Pension funds

Central Bank

A central bank is a national institution that manages a country's currency, money supply, and interest rates.

1. The Central Bank sets monetary policy to control inflation and stabilise the economy.
2. It serves as the lender of last resort to financial institutions.
3. It manages the country's foreign and gold reserves.

Commercial Banks

1. Commercial banks provide loans and credit to individuals and businesses.
2. It offers deposit accounts for savings and transactions.
3. It facilitates payment processes and money transfers

Investment Banks

1. Investment banks help companies to raise capital by issuing stocks and bonds.
2. It facilitates marketing and trading activities.
3. It provides advisory services for mergers and acquisitions

Insurance Companies

1. Insurance companies offer various insurance products to manage risk.

2. Premiums collected by policyholders are invested by insurance companies to generate returns

Credit Unions

1. Credit unions provide financial services to their members including savings accounts and loans.

2. They operate as a non-profit making organisation and focus on community development.

Pension Funds

It refers to retirement savings for individuals who go on retirement, and it plays the following role:

1. The pension Fund manages savings for the individuals.

2. They invest contributions of the individuals to generate returns for future payments to pensioners.

Activity 9.2 Roles of the Central Bank and Financial Institutions in Ghana's Economy

Organise yourselves into small groups of five and get a whiteboard or flip chart, markers and research information on the central bank and financial institutions and recent economic data on Ghana (e.g., inflation rates, GDP growth, unemployment rates)

1. Use the handouts and information from the internet to describe the current economic situation in Ghana, highlighting key issues such as high inflation rates (currently around 41%), rising cost of living, and recent external influences like International Monetary Fund contributions. Nominate a scribe, agree on content and write a short description of Ghana's current economic situation.

2. In your groups review the information on the roles of Ghana's central bank and other financial institutions. The group should discuss the specific roles and responsibilities of these institutions in managing Ghana's economic challenges that you outlined in question 1 of the activity.

3. Each group should present their findings to the class. In the presentation each group should use the whiteboard or flip chart to list the key points they discussed

4. Each individual should write up their own summary of the key differences between the central bank and other financial institutions. The summary

should highlight the importance of their roles in maintaining economic stability and promoting growth in Ghana. It should also suggest ways in which these institutions can work together to address future economic challenges in Ghana.

PRINCIPLES, TYPES AND CLASSIFICATION OF TAXATION

Figure 9.3: Image portraying taxation

Taxation may be defined as a process whereby the central government or its authorities impose charges or levies on its citizens or individuals, businesses, and other outfits or entities. Taxation is a critical aspect of public finance and economic policy as it raises revenue for the government to be able to fund public services and infrastructure.

It is an essential system for the functioning of the economy and the government as it plays a key role in resource distribution and economic stability. Primarily, taxes are used to fund public goods and services such as infrastructure (roads, drainage, public buildings), education, healthcare, defence and social welfare.

Principles of Taxation

A good tax system must be equitable, efficient, simple, certain, convenient, and sufficient.

Equity: The **principle of equity** in taxation states that the tax system should be **fair and just**, ensuring that individuals and entities **contribute** to government revenue in proportion to their **ability to pay**. The tax system must be equitable both vertically and horizontally.

1. Under horizontal equity, taxpayers with a similar ability to pay should owe similar amounts of taxes.
2. Under vertical equity, taxpayers who have a greater ability to pay owe more on taxes to reflect a progressive tax system.

Efficiency: A good tax system should be efficient, meaning it achieves its goals without disrupting the economy or changing people's behaviour significantly.

Simplicity: A tax system should be easy to understand to reduce compliance (measures to ensure people pay) and administrative costs.

Certainty: Taxpayers must know how much tax to pay when it should be paid and how it should be paid. This will enable taxpayers to manage their finances better and never miss the payment.

Convenience: The timing of tax payments must be convenient to taxpayers at all levels. For instance, the payment at the source of income tax to ease the process of tax payment (usually, government workers paid by controller and accountant general department)

Sufficiency: A good tax system must be able to generate enough revenue to meet the central government expenditure needs. This tax system must provide a sufficient and stable funding source for the central administration.

Types of Taxes

There are two types of tax namely Direct and Indirect tax.

Direct Tax: a tax you pay straight to the government, like when you pay income tax on the money you earn. Direct taxes are in the following forms:

1. Income tax: it is levied on individuals or business earnings.
2. Corporate tax which is levied on corporations' profit.
3. Wealth tax which is charged on individuals' net wealth or asset holdings.
4. Property tax which is levied on ownership of property such as real estate.

Indirect Tax: added to the price of things you buy, like sales tax, and the store sends it to the government. Indirect taxes are in the following forms:

1. Sales tax is levied on the sales of goods and services.

2. Value Added Tax (VAT) which is levied on Value added to a good at each stage of production of a good or service.

3. Excise tax is the tax levied on specific goods such as tobacco, fuel and alcohol.

4. Customs Duty is levied on exported goods.

5. Service Tax is levied on specific services delivered.

Classification of Taxes

Taxes are classified by their nature, incidence, base, and the purpose for which they are imposed.

Classification By Nature

1. When the tax rate remains constant regardless of the level of the level of income of the individual. An example is the flat tax rate, also referred to as proportional tax.

2. When the tax rate increases as the taxable income increases. For example, the graduated income tax rate is classified as progressive income tax.

3. When the tax rate decreases as the taxable income increases. For example, sales tax is referred to as a regressive tax. It takes a larger percentage of income from the low-income earner.

Classification By Incidence

1. When the incidence of tax payment falls directly on the taxpayer who pays the tax, it is referred to as Direct Tax. An example is the Income tax.

2. When the incidence of tax is shifted unto the consumer, it is referred to as indirect tax. An example is the Value Added Tax.

3. When the incidence of tax is on ownership or transfer of properties, it is referred to as Property Based Tax. For example, Property tax or Estate tax.

Classification By Purpose

1. When the purpose for which the tax is imposed is to generate income for the government, it is referred to as Revenue Tax. An example is Income Tax

2. When the purpose is to regulate certain behaviours of industries such as to reduce the emission of carbon, it is called Regulatory Tax.

3. When the purpose of levying the tax is to fund or support specific public services like road construction, it is referred to as Benefit Tax. An example is the fuel tax such as the Energy Debt Recovery Ley.

Advantages And Disadvantages of Taxation

Advantages of Taxation

1. **Revenue Generation**

Taxes generate enough revenue to finance public services and goods such as hospitals, schools, roads, and social programs. Example*:* In Ghana, the government uses taxes generated to build and maintain roads and other infrastructure.

2. **Wealth Redistribution**

Progressive taxes help to close the gap between the rich and the poor by ensuring that people who earn more pay higher taxes. This revenue is used to support programs for poorer communities. Example*:* Ghana's income tax system is progressive, and it ensures that higher earners pay more, which funds services for less privileged groups.

3. **Economic Stabilisation**

Taxes help stabilise the economy by controlling inflation and managing economic changes. This is done by changing tax rates and policies. Example: Changing corporate tax rates in Ghana can affect business investments and economic growth.

4. **Encouraging Positive Behaviours**

Governments use tax policies to promote good behaviours, like saving for retirement, using renewable energy, or reducing the use of harmful products. **Example**: Ghana's government can give tax benefits to businesses that invest in renewable energy projects.

5. **Providing Public Goods**

Taxes are used to provide public services such as national defence, public parks, and disaster relief that are not provided by the private sector. **Example**: Tax Revenue in Ghana helps to finance public education and healthcare.

Disadvantages of Taxation

1. **Economic Distortion**

Taxes can lead to changes in the economy which affect how people and businesses behave, sometimes leading to inefficient use of resources. Example: High corporate taxes in Ghana may discourage foreign investment leading to slow economic growth.

2. **Administrative Complexity and Cost**

Collecting taxes can be expensive and difficult, especially when trying to prevent tax evasion and ensure everyone pays. Example: Ghana faces problems with managing and collecting taxes, which leads to inefficiencies and higher costs.

3. **Tax Evasion and Avoidance**

High taxes and complicated systems can make people and businesses avoid or evade taxes, reducing government revenue. Example: Some businesses and individuals in Ghana avoid paying taxes, which lowers the tax revenue available for public services.

4. **Impact on Economic Behaviour**

Taxes on income, profits, and consumption can reduce people's willingness to work, save, or invest, which may slow down economic growth. Example: High personal income taxes in Ghana might discourage people from taking higher-paying jobs or working extra hours.

5. **Regressive Impact**

Some taxes, like sales taxes, are regressive because they affect more low-income earners who spend a bigger share of their income on goods that are taxed. For example, VAT is harder on low-income earners in Ghana since they spend most of their income on basic goods that are taxed.

Activity 9.3

Organise yourselves into small groups of no more than five persons for this activity.

1. Discuss the two types of taxes using examples

2. Discuss the principles of taxation using examples

3. Discuss how taxes are classified using examples

4. You will need card, scissors, markers for this question OR you can create digital slides using presentation software like PowerPoint.

5. Mix and Match/Sorting Exercise

   a. **Preparation**: Create cards or slides with the following items:

   - Principles of Taxation: definitions for example, equity, efficiency, simplicity, certainty.

   - Types of Taxation: Direct e.g. income tax, wealth tax, Indirect, e.g. VAT, sales tax.

   - Classifications of Taxation: Proportional, regressive, progressive.

   - Include examples for each category (e.g., income tax, VAT, flat tax, luxury tax).

   b. **Activity**

   - Distribute the cards or display the slides.

   - Sort the cards into the correct categories:

   - Match principles with their definitions.

   - Sort types of taxation into direct and indirect.

   - Classify taxes as proportional, regressive, or progressive.

6. In your groups discuss the advantages and disadvantages of taxation. Is your group in favour of or against taxation? Give reasons for your group's feelings.

EXTENDED READING

- https://www.tutorhelpdesk.com/homeworkhelp/Finance-/Motives-Holding-Cash-Assignment-Help.html

- https://www.shiksha.com/online-courses/articles/financial-institutions-types-roles-and-advantages/#fin

- https://www.britannica.com/money/taxation

- https://www.scribd.com/document/128643609/Advantages-and-Disadvantages-of-Taxation

1. In Ghana, people and businesses hold money for different reasons depending on their needs and circumstances. These reasons can be categorised into three main motives: the transaction motive, the precautionary motive, and the speculative motive. Each motive has a specific purpose, whether for everyday spending, unexpected expenses, or taking advantage of future opportunities.

   A person might keep money in their wallet to buy food, pay for transportation, or pay school fees for their children. A business might hold cash to pay salaries, and rent, and buy materials to keep its operations running smoothly.

   An individual might save money to cover unexpected medical bills or car repairs. A business might save money in case there is a sudden rise in prices or a drop in sales. A person might hold onto money while waiting for a good time to buy stocks or land, hoping the price will drop. A business might keep money in case of an opportunity to invest in new technology or equipment when prices are favourable.

   a. What are the three main motives for holding money?

   b. Explain how the precautionary motive helps individuals and businesses.

   c. What does the speculative motive for holding money involve?

   d. Explain the transaction motive for holding money using an example from Ghana.

   e. How can businesses in Ghana use the precautionary motive to prepare for economic uncertainty?

2. Financial institutions play a vital role in the economy by providing services that help people, businesses, and governments manage money and risks. They help the economy to grow and remain stable by performing several important functions.

   a. State three roles performed by financial institutions in an economy.

   b. Explain any five roles of financial institutions in an economy.

   c. Tabulate five financial institutions and their respective roles.

   d. Imagine you are a financial advisor in Ghana. Explain how financial institutions can help businesses in your country grow.

3. Taxation is a key function of the government, helping to generate revenue for public services like roads, healthcare, education, and social programs. Understanding how taxation works is crucial for understanding how governments fund services and maintain stability in the economy.

   a. List the two types of taxation.

   b. List three examples of each type of taxation.

    c. Explain three types of direct and indirect taxation using Ghanaian examples.

    d. Explain four principles of taxation using real-world examples.

    e. Describe how taxes are classified using real-world examples.

4. Taxation is essential for the government to generate revenue, fund public services, and manage the economy. However, while taxes have benefits, they also come with challenges. Answer the following question.

    a. Identify four advantages of taxation.

    b. Identify three disadvantages of taxation.

    c. Using Ghanaian examples, analyse four advantages and disadvantages of taxation.

Multiple Choice Questions

1. Which financial institution accepts deposits and provides loans?

    A. Investment bank

    B. Commercial bank

    C. Insurance company

    D. Pension fund

2. What is the primary function of central banks?

    A. Facilitate investments

    B. Regulate money supply

    C. Provide insurance

    D. Manage pensions

3. Which public finance revenue source is levied on income or profits?

    A. Indirect tax

    B. Direct tax

    C. Subsidy

    D. Grant

4. What is the main advantage of taxation?

    A. Reduces government spending

    B. Encourages economic growth

    C. Redistribute income

    D. Increases inflation

5. Which financial institution provides long-term financing?

A. Commercial bank

B. Investment bank

C. Insurance company

D. Stock exchange

6. What is the disadvantage of progressive taxation?

A. Reduces income inequality

B. Encourages economic growth

C. Increases tax evasion

D. Decreases government revenue

7. Which public finance expenditure type funds social programs?

A. Capital expenditure

B. Current expenditure

C. Development expenditure

D. Social expenditure

8. What is the role of financial intermediaries?

A. Mobilising savings and allocating credit

B. Providing insurance

C. Facilitating investments

D. Regulating money supply

9. Which tax system benefits low-income earners?

A. Regressive tax

B. Progressive tax

C. Proportional tax

D. Flat tax

10. What is the primary goal of fiscal policy?

A. Price stability

B. Economic growth

C. Full employment

D. All of the above

AGRICULTURE, INDUSTRIES AND TRADE

GOVERNMENT ECONOMIC POLICY AND TRADE

AGRICULTURE, INDUSTRIALISATION AND TRADE

INTRODUCTION

Welcome to Section 10. In this section, you will explore the challenges and solutions in both the **Agricultural** and **Industrial Sectors** in Ghana. You will learn about issues like poor infrastructure or limited access to technology in agriculture, and the solutions that can help farmers to improve upon their total production. You will discover the challenges faced by industries, such as high production costs, and how they overcome them.

You will also examine the concept of **international trade**, which is the exchange of goods and services between countries. Finally, you will compare **Domestic trade** (trade within Ghana) with **international trade** (trade with other countries), and understand how they differ in terms of scale, rules, and the goods traded.

KEY IDEAS

- Agriculture in Ghana faces several challenges, such as poor infrastructure, limited access to modern technology, and the impact of climate change, which affect food production and the livelihood of farmers.
- International trade involves the exchange of goods and services between countries; Domestic trade takes place within one country. International trade often faces additional challenges like tariffs on imported goods and the additional costs from unequal currency exchange rates.
- Possible solutions to industrial challenges include investing in new technologies, reducing energy costs, and improving critical infrastructure like roads and electricity.
- The industrial sector in Ghana faces challenges such as high production costs, outdated technology, and energy shortages, which hinder growth and competitiveness.
- To overcome agricultural challenges, solutions include investing in modern farming techniques, improving irrigation systems, and providing better access to markets and financial support for farmers.

THE AGRICULTURE SECTOR: CHALLENGES AND SOLUTIONS

Agriculture is a key part of Ghana's economy and primary industry. It provides jobs, food, and raw materials for factories, helping with the country's development. Farming contributes significantly to Ghana's GDP (Gross Domestic Product), adding 21.1% by value in 2023. Agriculture employs about forty percent of the population of Ghana. For example, cocoa farming in Ashanti and Western Regions supports many families, while rice farming in the Northern Region provides food and jobs.

Agriculture in Ghana includes crop farming, livestock rearing, fishing, and forestry. Key crops are cocoa, maize, yams, cassava, plantains, rice, and oil palm. Ghana is the world's second-largest cocoa producer after Côte d'Ivoire, and cocoa is a major export, earning foreign income. Most farmers in Ghana are small-scale, working on farms about 1.2 hectares in size. They rely on manual labour with limited modern tools and technology.

Agricultural activities differ by region. For example: Southern regions grow cash crops like cocoa (e.g., in Ashanti and Western Regions) and oil palm (e.g., in Central Region). Northern regions focus on staple crops like maize, millet, and sorghum (e.g., in Upper East and Northern Regions).

Figure 10.1: Images of some activities in the Agricultural sector (Livestock rearing. Crop farming, fish farming)

Challenges Facing Agriculture in Ghana

1. **Climate Change and Weather Variability**

Changes in weather, like unpredictable rainfall, droughts, and floods, reduce crop yields and cause food shortages, making it difficult for farmers to make a living. For example, the Northern Region often faces drought, affecting maize and millet production.

2. **Limited Access to Modern Farming Techniques**

Many farmers still use traditional farming methods, which are less efficient and lead to lower crop production. For instance, most farmers in rural areas do not use modern irrigation or improved seeds.

3. **Inadequate Infrastructure**

Poor roads, lack of storage facilities, and limited market access lead to high losses after harvest and make it expensive to sell farm products. Time taken to reach markets on bad roads can damage produce and vehicles. Often farmers cannot reach markets where they might get a better price. Perishable crops like tomatoes and okra need proper storage cool facilities to make them last longer. These are common problems in rural areas like the Volta Region.

4. **Financial Constraints**

Many farmers struggle to get loans or financial support, making it difficult to buy better seeds, fertilisers, or equipment to improve their farms. This is due to a lack of collateral securities.

5. **Land Tenure Issues**

Farmers face problems with unclear land ownership, making it hard to get land for farming or invest in improving it. This is common in both urban and rural areas.

6. **Pests and Diseases**

Pests and diseases often destroy crops and livestock, causing significant losses.

For example, the fall armyworm has affected maize farmers in the Ashanti Region.

7. **Low Levels of Mechanization**

There is limited use of machines like tractors and harvesters, which makes farming more labour-intensive and less productive.

Solutions to Agricultural Problems in Ghana

1. **Improved Farming Techniques**

The introduction of modern farming methods, like irrigation and the use of improved seeds, can help increase crop yields. For example, the use of drought-resistant maize in the Northern Region helps farmers cope with changing weather patterns.

2. **Better Access to Financial Support**

Providing farmers with easier access to loans and financial services can help them buy better seeds, fertilisers, and equipment. The government should support farmers with low-interest loans, like the Planting for Food and Jobs program.

3. **Improved Infrastructure**

Building better roads, storage facilities, and markets will reduce post-harvest losses and make it easier for farmers to sell their produce. For example, improving roads in rural areas like the Upper West Region would help farmers transport goods faster to markets.

4. **Climate Change Adaptation**

Encouraging climate-smart agriculture, like rainwater harvesting and crop rotation, can help farmers adapt to weather changes. For instance, in the Volta Region, farmers can use water reservoirs to store water for irrigation during dry seasons.

5. **Pest and Disease Control**

Using better pest control methods, like organic pesticides or integrated pest management, will help protect crops and livestock. For example, training farmers to manage fall armyworms can reduce damage to maize crops in the Ashanti Region.

6. **Increased Mechanisation**

Providing affordable farming equipment, like tractors and harvesters, will help farmers work more efficiently and increase productivity. The government should introduce programs to make machinery accessible to farmers in rural areas.

In 2017, Ghana faced a major challenge in agriculture when the **fall armyworm**, a destructive pest, began attacking maize farms, especially in the Ashanti, Bono, and Western Regions. The pest caused serious damage to maize crops. Farmers lost up to 50% of their crops, leading to reduced food supply, loss of income, and food insecurity for many families. The government, through the Ministry of Food and Agriculture, provided free pesticides to farmers in the affected areas. They also organised workshops to educate farmers on how to identify and manage the fall armyworm as well as trained farmers on how to properly use the pesticides to control the pest. Through the government's support and education programs, the spread of the fall armyworm was reduced. The farmers were able to protect their crops and increase maize production again and also use the knowledge and skills gained to handle future pest challenges.

Activity 10.1 Case Study

1. **Read the case study below**:

   Kofi is a smallholder cocoa farmer in the Ashanti Region of Ghana. He owns a 2-hectare farm that has been his family's main income source for generations. Kofi faces challenges such as unpredictable weather, outdated farming methods, limited access to affordable credit, pests and diseases like black pod disease, and inadequate storage facilities and poor roads.

Kofi attended a workshop on climate-smart farming and learned about shade-grown cocoa farming, which helps protect trees from excessive sunlight and reduces water stress. He planted shade trees to create a better microclimate for his cocoa trees. A government initiative provided him with improved, disease-resistant cocoa seedlings and training on best farming practices. Kofi adopted these seedlings and improved his pruning and fertilization **techniques, resulting in healthier and more productive cocoa trees.**

2. **Discuss the case study as a group and answer the following questions**:

   a. Identify six problems Kofi faces as a small-scale cocoa farmer.

   b. Identify three climate-smart farming practices that have helped solve some of Kofi's problems.

   c. Identify two improved farming techniques that Kofi has used to make the cocoa trees produce more pods.

3. Create a presentation or write a short drama that acts out Kofi's case study.

4. Show your presentation or drama to the rest of the class.

Activity 10.2 Challenges and Solutions to Farming

1. Study the table below. The challenges and solutions to farming in Ghana are all mixed up.

Challenges	Solutions
Climate Change and Weather Variability	Use integrated pest management and disease control measures.
Limited Access to Modern Farming Techniques	Provide subsidies for farming machinery to increase efficiency.
Inadequate Infrastructure	Implement policies for secure land ownership to encourage investment in land improvement.
Financial Constraints	Use drought-resistant crops and better water management to handle unpredictable weather.
Land Tenure Issues	Improve roads, build storage facilities, and create better market access.
Pests and Diseases	Expand access to credit and financial services to invest in better seeds, fertilizers, and equipment.

Low Levels of Mechanization	Improve knowledge and skills to educate farmers on better growing practices.
Poor farming knowledge and skills	Provide advanced farming tools and methods to improve productivity.

2.   Create a new table which matches each challenge with the correct solution.

TERTIARY INDUSTRY OR THE SERVICE SECTOR: IMPORTANCE, CHALLENGES AND SOLUTIONS

The service sector, also known as the tertiary industry, includes businesses that provide services and sell finished goods. This sector covers a wide range of activities such as retail, transportation, entertainment, healthcare, education, finance, tourism, and technology.

In Ghana, the service sector is the largest and fastest-growing part of the economy. As of 2019, the service sector accounted for **47.2%** of the Ghana's GDP (Gross Domestic Product) and provides many jobs. People work in areas like banking, healthcare, teaching, and tourism. This sector plays a significant role in reducing unemployment and helping the economy grow.

With the rapid growth of cities like Accra, Kumas**i**, and Takoradi, the demand for services is growing. This is creating job opportunities in areas like real estate (building houses and offices), retail (selling goods), and infrastructure development (building roads, bridges, water supply and drainage).

Digital technology is also changing the service sector. For example, mobile banking and online shopping are making it easier for people to access services. Companies are using the internet to improve how they deliver their services and create new ways of doing business.

Foreign companies are also investing in Ghana's service sector, especially in banking, telecommunications, and hotels. This is helping the sector grow even more. The government of Ghana supports this growth by improving infrastructure (like roads and electricity) and creating policies to help small businesses succeed.

Figure 10.2 A: The Service Sector

Figure 10.2 B: Images of some activities in the Service Sector

Importance of the Service Sector or Tertiary Industry of Ghana

1. **Job Creation:** The service sector provides many jobs for people in areas like healthcare, education, banking, and tourism. It is the sector that employs the majority of people in Ghana. For example, teachers, doctors, and bankers are all part of the service sector. As Ghana's population grows, more people are needed to work in these industries.

2. **Contributes to GDP:** The service sector is the largest contributor to Ghana's economy. It generates a large part of the country's GDP (Gross Domestic

Product). For instance, industries like telecommunications and finance help drive the economy forward by providing essential services.

3. **Supports Other Sectors:** The service sector supports other industries, like agriculture and manufacturing, by providing important services. For example, transportation services help move goods from farms to markets, while financial services help farmers and businesses get loans to grow their operations.

4. **Boosts Trade and Tourism:** The service sector, especially tourism, helps bring foreign exchange into the country. Famous sites like Kakum National Park and Cape Coast Castle attract both local and international visitors, creating jobs in hospitality and transport.

5. **Improves Living Standards:** Services like healthcare, education, and banking improve the quality of life. For example, healthcare services help people stay healthy, while education helps young people learn and get good jobs.

6. **Attracts Foreign Investment:** The service sector attracts foreign companies that invest in Ghana. For example, international banks like Standard Chartered and telecommunication companies like MTN bring in money and create jobs, which help grow the economy.

Challenges of the Tertiary (Service) Sector

1. **Limited Access to Technology:** Many businesses in the service sector lack access to modern technology, which makes it hard to improve services. For example, some small shops and businesses do not have the internet or computers to manage their sales or communicate with customers online. This limits their growth and efficiency.

2. **Inadequate Infrastructure:** Poor roads, poor supply of electricity, and limited internet access in some areas make it difficult for service businesses to operate smoothly. For instance, in rural areas, businesses may struggle with bad roads, making it hard for people to reach their shops or services.

3. **Lack of Skilled Workers:** There is a shortage of trained professionals in areas like healthcare, education, and technology. For example, there are not enough qualified nurses and doctors in some regions, which affects the quality of healthcare services available to people.

4. **High Cost of Doing Business:** The cost of running a business in Ghana can be extremely high due to things like taxes, utility bills, and rent. For example, a small shop in Accra may struggle with the high cost of electricity and rent, which can make it hard to make a profit and stay in business.

5. **Competition from Foreign Companies:** Local businesses in the service sector face strong competition from foreign companies that have more money and resources. For example, international companies like **KFC** and **McDonald's** face less competition from local food vendors, which makes it harder for small Ghanaian food businesses to survive.

Note

Search the internet for more information on the challenges facing the tertiary sector in Ghana.

Solutions to the Challenges Face by the Service Sector or Tertiary Industry of Ghana

1. **Improving Technology Access:** The government and private companies should provide affordable internet and technology to businesses, especially in rural areas. For example, expanding affordable mobile data services like MTN and Vodafone can help small businesses connect with customers online.

2. **Developing Better Infrastructure:** Investing in good roads, stable electricity, and reliable internet will help service businesses operate smoothly. For instance, fixing bad roads in rural areas can make it easier for businesses to reach their customers and deliver goods.

3. **Training Skilled Workers:** The government should support education and training programs to help people gain the skills needed for jobs in healthcare, technology, and other services. For example, technical and vocational schools can teach students skills for industries like IT and hospitality.

4. **Reducing Business Costs:** Lowering taxes and utility costs for small businesses can make it easier for them to grow. For example, the government can give tax relief to small shops and service providers to help them save money and reinvest in their businesses.

5. **Supporting Local Businesses:** Encouraging Ghanaians to buy from local businesses and creating policies to protect them from foreign competition can help them grow. For instance, promoting local restaurants over international chains like KFC can boost Ghanaian-owned businesses.

Example

In a rural village in Ghana, the local community faced significant challenges in accessing healthcare services. The only health center was far away, and many residents had to walk long distances to seek medical attention. This led to delays in treatment, especially for pregnant women and people with emergencies. The lack of healthcare workers and proper equipment made the problem worse. As a result, many people were unable to get medical care on time, some illnesses worsened because of delays in treatment, and pregnant women often delivered babies at home, leading to complications. This led to an increase in infant mortalities. The government, in addressing the problem built a CHPS compound, bringing healthcare services closer to the people. Nurses and midwives were trained and got posted to the town. Later, a van equipped with basic medical supplies visited remote parts of the village regularly to provide healthcare services.

As a result of these interventions by the government, access to healthcare improved significantly, with people no longer needing to travel long distances, the number of home births reduced, and maternal and child health improved, most people attended health check-ups and got vaccinated.

Activity 10.3

Read again the points made in section 10 just before this activity.

1. Discuss the contributions the service sector makes to Ghana's economy.

2. Discuss the challenges that the service sector faces in Ghana

3. Discuss the solutions to the challenges faced by the service sector in Ghana.

4. Choose one of the following presentations.

   a. Contributions of the Service Sector
   - Slide 1: Title and name
   - Slide 2: Job Creation (include examples like teachers, doctors, bankers)
   - Slide 3: Contributes to GDP (include examples like telecommunications, finance)
   - Slide 4: Supports Other Sectors (include transportation and financial services)
   - Slide 5: Boosts Trade and Tourism (include examples like Kakum National Park)
   - Slide 6: Conclusion and key takeaways

   b. Challenges of the Service Sector
   - Slide 1: Title and name
   - Slide 2: Limited Access to Technology (include examples of small shops)
   - Slide 3: Inadequate Infrastructure (include examples of poor roads, electricity)
   - Slide 4: Lack of Skilled Workers (include examples of healthcare and education)
   - Slide 5: High Cost of Doing Business (include examples of taxes, utilities)
   - Slide 6: Competition from Foreign Companies (include examples of KFC, McDonald's)
   - Slide 7: Conclusion and key takeaways

c. **Solutions to the Challenges in the Service Sector**

- Slide 1: Title and name
- Slide 2: Improving Technology Access (include examples of internet expansion)
- Slide 3: Developing Better Infrastructure (include examples of road improvements)
- Slide 4: Training Skilled Workers (include examples of vocational training)
- Slide 5: Reducing Business Costs (include examples of tax relief)
- Slide 6: Supporting Local Businesses (include examples of promoting local vendors)
- Slide 7: Conclusion and key takeaways

5. Complete the slides using a balance of diagrams, graphs, short written statements and pictures.

6. Present to the class and be prepared to answer questions.

Activity 10.4

Read the following case study which outlines the solution to a tertiary industry problem in the banking sector which was solved by Mobile Telephone Network (MTN) Ghana.

In Ghana, traditional banking struggles with limited access in rural areas and complicated processes, leaving many without bank accounts. In 2010, MTN Ghana noticed that despite a large customer base, many people lacked access to formal banking. They used unsafe, informal methods to save and transact money. MTN launched MTN Mobile Money (MoMo) to offer financial services to people without bank accounts. They created a simple app accessible via basic phones and set up agents across the country, even in remote areas, to facilitate transactions.

MTN partnered with banks and financial institutions to offer more services like savings accounts, loans, and insurance. They ran educational campaigns to teach the public about mobile money benefits and worked with the Bank of Ghana to ensure regulatory compliance. By 2020, MTN MoMo had over 14 million users, increasing financial inclusion, especially in rural areas. People could now transfer money, pay bills, and save using their phones, boosting economic activities and benefiting small businesses.

Now answer the following questions

1. List the for main banking issues Ghanaians living in rural areas experienced.

2. Describe how MTN Ghana improved financial inclusion for people living in rural areas?

3. Research the following area using the internet

    • How has MTN Mobile Money affected the economic activities of small businesses in rural areas?

    • How do other mobile money services in Ghana compare with MTN MoMo in terms of user base and service efficiency?

    • What are the main technological challenges faced by mobile money services in rural areas, and how can they be addressed?

    • What are the potential future innovations in mobile banking that could further enhance financial inclusion in Ghana?

    • What role has the government played in supporting the expansion of mobile banking services in rural areas?

THE INDUSTRIAL SECTOR: CHALLENGES AND SOLUTIONS

The secondary industrial sector is the part of the economy that focuses on making products from raw materials. This includes activities like**:** Manufacturing activities that involve turning raw materials into goods, like making clothes from cotton or soap from palm oil, Construction e.g., building houses, roads, and factories and Energy Production like Producing electricity from sources like water (hydropower) or gas. It is one of the three main sectors of the economy alongside the primary sector and the secondary sector.

In Ghana, the secondary industrial sector is important for economic growth because it creates jobs, promotes exports, and reduces imports as well as adding value to raw materials. Despite its importance, this sector faces many challenges. Below are some of the key challenges and potential solutions.

Figure 10.3 A: Images of some Industrial firms

Figure 10.3 B: Images of some Industrial firms

Challenges of the Secondary Sector

1. **Inadequate Infrastructure:** Many industries lack basic infrastructure like stable electricity and good roads. For example, frequent power outages "dumsor" make it hard for factories to produce goods consistently.

2. **High Production Costs:** The cost of raw materials, electricity, and transportation is high leading to higher production costs. For instance, a local bakery may spend more on importing flour than it earns from selling bread.

3. **Limited Access to Credit:** Many businesses struggle to get loans to expand their operations because they lack collateral securities. For example, small garment factories find it difficult to access loans to buy modern machines because banks require high collateral.

4. **Low Technology Adoption Many industries rely on outdated tools and methods, leading to inefficiency. For instance, farmers processing cassava into gari often use manual labour instead of advanced technology.**

5. **Competition from Imported Goods:** Cheap imports, especially from countries like China, make it hard for local industries to survive. This is because the prices of imported commodities are cheaper than locally produced commodities. For example, Ghanaian textiles or fabrics face strong competition from imported second-hand clothes.

6. **Shortage of Skilled Labor:** Most industries in Ghana do not have enough skilled workers for technical jobs. This is due to inadequate vocational and technical education. For example, many factories need technicians, but only a few young people are trained in engineering.

7. **Environmental Challenges:** Pollution from industries and lack of proper waste disposal systems are major problems. For instance, illegal small-scale mining "galamsey" pollutes water bodies, affecting industries like water bottling.

8. **Inconsistent Government Policies:** Frequent changes in policies and taxes make it hard for industries to plan long-term. For example, sudden increases in import duties can hurt local manufacturers who rely on imported materials.

Solutions to the Problems of the Secondary Sector

1. **Improvement in Power Supply:** Manufacturing companies need steady electricity to work therefore there must be an adequate supply of power. When power goes off often, it affects production. The government can invest in reliable energy sources like solar and wind to supplement the power supply.

2. **Improvement in Roads and other Transportation Networks:** Roads and railway lines should be improved so that goods can easily be transported from the Manufacturers to final consumers. Example: The Motorway should be rehabilitated to help factories transport goods quickly to the Tema Port for export.

3. **Support Local Businesses with Loans:** Banks and government programs should provide low-interest loans to local manufacturers to help increase their capital for expansion in their scale of production. Example: The National Board for Small Scale Industries (NBSSI) can give loans to small manufacturers like clothing makers in Accra or furniture workshops in Kumasi.

4. **Train Skilled Workers:** Vocational and technical education should be enhanced so that people will acquire skills in operating machines and technology. Training programs can be embarked on by the government to facilitate the development of skills. Example: Technical universities and KNUST can work with industries to train students for the manufacturing sector.

5. **Reduction in Taxes for Manufacturers:** Taxes must be reduced to reduce the cost of production of manufacturers. This will lead to a fall in the prices of manufactured products thereby increasing demand. *Example*: Reducing taxes for car assembling plants like Kantanka Motors can make their vehicles more affordable and competitive.

6. **Adding Value to Raw Materials:** Instead of exporting raw materials like cocoa beans or gold, factories can process them into finished goods like chocolate or jewellery before selling them. This increases the value of the products, allowing for higher prices on the international market.

Example

Kantanka Automobile is a Ghanaian company that assembles cars locally. It was founded by Kwadwo Safo Kantanka and is known for producing cars designed to suit Ghana's roads and climate. Despite its innovation, Kantanka faces several challenges, such as high import duties on spare parts, low demand and lack of public support for its cars, and limited funding to improve its operations. By addressing these challenges, the government can reduce import duties on car parts; this will lower the cost of making the cars and allow Kantanka to sell them at affordable prices. More campaigns can

be embarked on to promote the made-in-Ghana cars, and the government and banks can provide low-interest loans to Kantanka to help the company expand and invest in better technology. These measures will allow Kantanka Motors to grow and become a key player in Ghana's manufacturing sector. This will create more jobs and reduce the reliance on imported cars.

Activity 10.5

1. Discuss with peers the solutions for the following problems faced by Ghanaian industries.

   a. **Poor Road Networks**: Many roads, especially in rural areas, are unpaved and poorly maintained, making transportation of goods difficult and costly.

   b. **Inadequate Electricity Supply**: Frequent power outages (blackouts) and unreliable electricity supply hinder industrial operations and productivity.

   c. **Limited Access to Water**: Insufficient water infrastructure affects industries that require large amounts of water for their processes.

   d. **Inefficient Telecommunications**: Poor internet connectivity and limited telecommunications infrastructure can affect business operations and communication.

2. Discuss each of the solutions below and identify the problems they solve.

   a. New financial products for industrial enterprises.

   b. Education and training to equip the workforce with the necessary skills.

   c. Promoting the use of local raw materials to reduce import dependency.

   d. Providing subsidies or tax incentives for energy-efficient technologies and practices.

   e. Simplifying business registration and licensing procedures to attract more investment.

   f. Adopting new technology and promoting research and development (R&D) through government grants and partnerships with international organisations.

3. Share your findings from 1 and 2 with other groups and then listen carefully to their findings from the discussions they had.

Activity 10.6 Solving the Problems of Ghana's Cocoa Industry

Ghana is the second-largest cocoa producer globally, yet it exports most of its cocoa beans raw, missing out on making higher-value products like chocolate and cocoa butter. Problems include unreliable power, poor roads, and limited water supply, making it hard to run cocoa processing facilities. Financing is tough to secure, making energy, raw material, and logistics costs high, which makes local processing less competitive. Additionally, there is a lack of modern technology and expertise needed for quality processing, and accessing international markets is difficult due to trade barriers and competition.

To address these issues, in 2010 the government introduced tax incentives to reduce costs for cocoa processors and encouraged investment. They aimed to export more processed cocoa products and invested in better energy infrastructure, roads, and rail networks to improve transportation. They set up funds for affordable loans and encouraged banks to offer financial products for the cocoa industry. The government also partnered with international companies for technology transfer and training local workers in advanced processing techniques.

Now answer the following questions

1. What are the main infrastructure problems that affect cocoa processing in Ghana?

2. How did the government help reduce operational costs for cocoa processors?

3. Research using the internet to find out how much the cocoa industry has changed since the government introduced incentives for processors and encouraged investment.

INTRODUCTION TO INTERNATIONAL TRADE

Most countries buy and sell goods and services to other countries. For example, Ghana sells cocoa to other countries and buys cars or electronics from abroad. This form of trade between countries is known as international trade. International trade helps countries get the products they need or want and can also help them to grow their economies by selling things to people in other parts of the world.

Figure 10.4 *Some Images of International Trade*

Key Components of International Trade

1. **Imports and Exports:** Exports are goods and services sold to other countries, like Ghana's cocoa exports to the US and UK, while imports are goods bought from other countries, like cars and electronics from Japan and China.

2. **Trade Balance (Net Exports):** The trade balance is the difference between a country's exports and imports; if exports are greater, there is a **trade surplus**, and if imports are greater, there is a **trade deficit**.

3. **Trade Agreements:** Trade agreements are deals between countries that set rules for trading, like Ghana's participation in the African Continental Free Trade Area (AfCFTA), which reduces taxes on trade within Africa.

   a. Bilateral Agreements are deals between two countries.

   b. Multilateral Agreements involve multiple countries, such as the North American Free Trade Agreement (NAFTA), the European Union (EU), and the World Trade Organisation (WTO).

4. **Trade Barriers:** Trade barriers are rules that control international trade, including tariffs (taxes on imports), quotas (limits on products), and subsidies (government support for local businesses).

   a. Tariffs make foreign goods more expensive, like Ghana's tax on imported cars.

   b. Quotas limit the amount of a product that can be imported like Ghana limiting rice imports to protect local farmers.

     c. Subsidies are government payments to local businesses, like supporting cocoa farmers to compete with foreign cocoa.

5. **Goods and Services:** Goods are physical products like machinery, clothing, and food, while services are intangible, like banking, insurance, and teaching.

Key Exports of Ghana

1. **Cocoa:** Ghana is one of the world's largest producers of cocoa, exporting it to countries like the United States and Europe.

2. **Gold:** Ghana exports gold, a major source of income, to countries like China, India, and the United States.

3. **Oil:** Ghana exports crude oil to countries like the United States and Italy, used for fuel and energy.

4. **Timber and Wood Products:** Ghana exports timber and wood products, including furniture, to some countries in Europe for construction and manufacturing.

5. **Bauxite:** Ghana exports bauxite, used to make aluminium, to countries like China.

Figure 10.5 Some images of key export goods of Ghana

Key Imports of Ghana

1. **Petroleum (Oil and Gas):** Ghana imports oil and gas from countries like Nigeria and Saudi Arabia to fuel cars, factories, and power plants.

2. **Machinery and Equipment:** Ghana imports mining and industrial equipment from countries such as China and the United States for construction and gold mining industries.

3. **Vehicles (Cars and Trucks):** Ghana imports cars, trucks, and other vehicles from countries like Japan, South Korea, and Germany for transportation.

4. **Electrical Appliances and Electronics:** Ghana imports electronics like smartphones and laptops from countries such as China and South Korea.

5. **Food and Agricultural Products:** Ghana imports food items like rice and wheat from countries like India and Thailand to meet local demand.
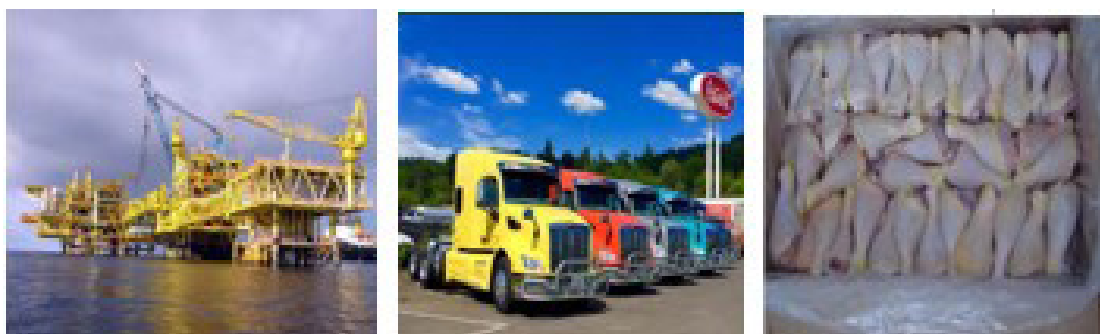
Figure 10.6: Some images of key import goods of Ghana

Major Trade Partners of Ghana

1. **China:** China is a major trade partner, importing gold and cocoa from Ghana while exporting electronics and machinery to Ghana.

2. **United States:** The U.S. trades with Ghana by importing cocoa and gold and exporting machinery and cars to Ghana.

3. **India:** India trades agricultural products and machinery with Ghana, exporting rice and other goods while importing gold and cocoa.

4. **United Kingdom (UK):** The UK is a key historical trade partner, importing cocoa, gold, and oil from Ghana while exporting cars and machinery to Ghana.

Economic Impact of International Trade in Ghana

1. **Economic Growth:** International trade helps Ghana's economy grow by earning money from exports like cocoa, which supports job creation and development.

2. **Job Creation:** Trade creates jobs in industries like farming, mining, and manufacturing, for example, those working in cocoa farming and processing.

3. **Access to New Products:** International trade allows Ghana to buy products like cars, electronics, and machinery that are not produced locally.

4. **Improved Technology and Skills:** Trade helps Ghana import advanced technology and knowledge to help improve industries like mining and agriculture.

5. **Better Standards of Living:** By trading with other countries, Ghana can access cheaper goods, like rice from India, making life more affordable for its people.

Benefits of International Trade

1. **Access to More Goods:** International trade allows Ghana to import goods like cars, electronics, and medicines that are not made locally or are too expensive to produce.

2. **Job Creation:** Trade with other countries creates jobs in industries like farming, manufacturing, and transportation, such as cocoa farming and gold mining in Ghana.

3. **Economic Growth:** International trade boosts Ghana's economy by earning money from exports like cocoa, which helps fund local infrastructure and business development.

4. **Access to Better Technology:** Trade enables Ghana to import advanced technology and machinery to improve industries like mining and agriculture.

5. **Improved Standard of Living:** Trading with other countries allows Ghana to buy goods at lower prices, making everyday life more affordable, for example, importing cheaper rice from India.

Challenges of International Trade

1. **Unfair Trade Practices:** Some countries use high taxes or rules that make it harder for Ghana's goods to compete, for instance, when high taxes make Ghana's cocoa more expensive.

2. **Dependence on Imports:** Ghana may rely too much on foreign goods, which could harm local businesses, for instance, if too many foreign grains of rice make it harder for local rice farming to grow.

3. **Currency Fluctuations:** Changes in the value of Ghana's cedi can make exports cheaper but increase the cost of imports, for instance, when a weaker cedi makes electronics more expensive.

4. **Trade Imbalances:** When Ghana imports more than it export, it may face a trade deficit, which can hurt the economy, such as importing more cars and electronics than it sells abroad.

5. **Global Competition:** Ghana faces competition from countries that produce cheaper or better-quality goods, for example, when cocoa from Ivory Coast competes with Ghana's cocoa.

Trade Policies and Agreements

1. **African Continental Free Trade Area (AfCFTA):** AfCFTA is an agreement between African countries to trade freely with lower taxes, making it easier for Ghana to trade cocoa and gold within Africa.

2. **World Trade Organisation (WTO) Membership:** As a member of the WTO, Ghana follows global trade rules to ensure fair treatment of its cocoa exports to countries like the United States and the UK.

3. **ECOWAS Trade Liberalisation Scheme (ETLS):** The ETLS allows West African countries, including Ghana, to trade goods freely within the region without high taxes, making it easier to sell products like rice to neighbouring countries.

4. **Bilateral Trade Agreements:** Bilateral trade agreements, like one with the United States, help Ghana lower taxes and make it easier to export goods like cocoa and gold.

5. **Customs and Tariffs Policies:** Ghana sets rules and taxes on imported and exported goods, like charging tariffs on imported cars to protect local car manufacturers.

Comparison of Domestic Trade to International Trade

Similarities Between Domestic Trade and International Trade

Basis	Domestic Trade	International Trade
Exchange of Goods and Services	It involves the exchange of goods and services within Ghana (for example, buying food from a local farmer).	It involves exchanging goods and services between Ghana and other countries (for example, Ghana exports cocoa to the U.S.).
Buyers and Sellers	Ghanaian businesses or consumers buying products from other Ghanaian companies or sellers.	Ghanaian businesses sell goods like gold or oil to foreign companies, and foreign firms sell to Ghana.
Involves Payment	Payment is made using the local currency (Ghana cedis).	Payment is made in foreign currencies (for example, U.S. dollars, euros, pounds).
Transport and Movement of Goods	Goods are transported within Ghana, often by trucks or other local transportation.	Goods are transported internationally, often by trucks, ships, or planes.
Influence of Supply and Demand	Prices are influenced by supply and demand within Ghana.	Prices are influenced by supply and demand globally (for example, global demand for cocoa affects Ghanaian cocoa prices).

Differences Between Domestic Trade and International Trade

Basis	Domestic Trade	Foreign Trade
Location	It happens within **Ghana**. For example, businesses and people buy rice from local markets in Accra, Mankranso, Bolgatanga and Akropong.	It happens between **Ghana and other countries**. For example, Ghana exports cocoa to the USA.
Currency	It uses **Ghanaian cedi (GH₵)**. For example, when you pay for goods at Takoradi market in cedis.	It uses **foreign currencies** like the dollar or euro. For example, when you pay for Chinese goods in US dollars.
Transportation	Goods are transported within Ghana (e.g., by **truck** or **bus**). For example, when goods are delivered from Kumasi to Accra.	Goods are transported across countries, often by **ship**, **plane**, or **train**. For example, shipping cocoa to Europe.
Government Regulations	It is governed by the **local Ghanaian laws** and policies. For example, local business taxes and regulations.	It is governed by both **Ghanaian and international laws**. For example, customs duties on goods imported into Ghana.

Trade Barriers	Fewer trade barriers (no customs checks). For example, local farmers sell to local markets.	It faces **customs duties, tariffs**, quotas and regulations. For example, tariffs on goods Ghana imports from China.
Market Size	It is limited to the **local Ghanaian market, f**or example, a shop selling products only within Sunyani.	It can reach a **global market, f**or example, Ghana exports gold to many countries in the world.
Payment Methods	Payments are made in **Ghana cedis**. For example, when a person pays for a taxi ride in Tamale with cedis.	Payments are made in **foreign currencies** or through international bank transfers, for example, when a Ghanaian business pays for goods from the UK in pounds.
Risk and Uncertainty	**Lower risk**, as everything is within Ghana. For example, there will be no currency exchange risk when buying locally.	**Higher risk**, due to factors like exchange rates and long shipping times. For example, changes in the exchange rate when buying goods from the U.S. might affect it.

Example

Ghana is one of the largest cocoa producers in the world. Cocoa farmers in Ghana grow cocoa beans, which are harvested and sold to local companies such as Olam Ghana, Nestle Ghana and Ghana Cocoa Processing Company (GCPC). These companies process the beans into products like chocolate, cocoa powder, and cocoa butter. Cocoa is sold in local markets within Ghana and also exported to other countries.

Chocolate companies and food manufacturers in countries like Switzerland, the USA, and Germany buy cocoa beans or processed cocoa from Ghana. They turn it into chocolate bars or other cocoa-based products that are sold worldwide. The cocoa is traded through international trade. For example, Ghana may sell its cocoa to companies in Europe, and then these companies sell the chocolate in stores around the world, including Ghana.

Comparison of Domestic and International Cocoa Trade in Ghana

Basis	Domestic Cocoa Trade (Within Ghana)	International Cocoa Trade (Exporting)
Market Location	Cocoa is sold within Ghana to local processors and manufacturers. For example, selling to a local chocolate company.	Cocoa is exported to other countries around the world. For example, selling cocoa beans to Europe or the USA.
Currency Used	Cocoa is bought and sold in Ghanaian cedis (GH₵). For instance, a local buyer pays a farmer in cedis.	Cocoa is traded using foreign currencies like dollars or euros. For example, Ghana sells cocoa to the USA and receives payment in dollars.
Price Determination	Prices are influenced by local market demand and Ghanaian government policies. For example, the government set prices for cocoa farmers.	Prices are influenced by global demand and international market conditions. For example, global cocoa price fluctuations affect how much Ghana can earn.
Transportation	Cocoa is transported within Ghana by trucks or trains. For example, cocoa moved from farms in Ashanti to processing factories in Accra.	Cocoa is transported internationally by ships or airplanes. For example, cocoa beans are being shipped from Tema Port to Europe.
Regulation	It is regulated by local laws and policies set by the Ghana Cocoa Board (COCOBOD). For example, COCOBOD sets guidelines for cocoa buying and selling.	It is regulated by both Ghanaian laws and international trade agreements. For example, Ghana must follow customs regulations and pay tariffs when exporting cocoa.

Activity 10.7

Read the following paragraph which has some details of developments in trade between African nations.

Trade between Ghana and other African nations has significantly improved, especially since the implementation of the Africa Continental Free Trade Area (AfCFTA) agreement in January 2021. This agreement aims to create a single continental market for goods and services, making the free movement of businesspeople and investments across Africa easy. Ghana, as a key player, has used this agreement to boost trade with other African countries, promoting industrialisation and job creation. The AfCFTA has opened up new markets for Ghanaian products, enhancing economic integration and cooperation within the continent.

Common products exported are

- Gold: Mainly exported to South Africa.

- Cocoa Beans and Products are exported to Cote D'Ivoire.

- Mineral Fuels and Oils are exported to Algeria and Nigeria

Common products imported are:

- Raw materials for cement from Egypt

- Shea Nuts from Burkina Faso.

- Iron and Steel from Nigeria

Using the information above answer the following questions.

1. **Exports from Ghana**

   Gold

   - How does Ghana benefit economically from exporting gold to other African countries like South Africa?

   - What challenges might Ghana face in maintaining its gold export market?

   Cocoa Beans and Products

   - How does exporting cocoa beans and products to countries like Côte d'Ivoire impact Ghana's economy?

   - Why is it important for Ghana to process more cocoa beans locally before exporting?

2. **Imports to Ghana**

   Iron and Steel

   - Why is it essential for Ghana to import iron and steel from countries like Nigeria?

   - What impact does the import of iron and steel have on Ghana's construction and industrial sectors?

   Shea Nuts

   - How do imports of shea nuts from Burkina Faso contribute to Ghana's local industries, such as cosmetics and food production?

   - What are the potential benefits and challenges of relying on imported raw materials like shea nuts?

3. **Share your answers with a friend or someone at home.**

Activity 10.8 Comparative Bar Chart of Ghana's Trade Data

Organise yourselves into groups of no more than five for this activity.

Objective: This activity will help you understand and visualise the changes in Ghana's exports and imports over three years (2021, 2022, and 2023) by creating a comparative bar chart.

Materials needed

- Data on Ghana's exports and imports for 2021, 2022, and 2023 (this can be seen at Ghana Trade Summary 2021 | WITS | Text)
- Graph paper or chart paper
- Rulers
- Pencils and erasers
- Coloured pencils or markers

Instructions

1. Gather the data on Ghana's exports and imports for the years 2021, 2022, and 2023. You can find this information from reliable sources such as Ghana Statistical Service reports or trade databases.

2. Create a table to organize the data. The table should have columns for the year, exports, and imports. Fill in the data for each year.

3. On the graph paper or chart paper, draw two sets of vertical bars for each year—one set for exports and one set for imports. Label the x-axis with the years (2021, 2022, 2023) and the y-axis with the value of trade (in USD).

4. Use different colours to distinguish between exports and imports. For example, use blue for exports and red for imports.

5. Clearly label each bar with the corresponding value.

6. Add a title to the chart, such as "Comparative Bar Chart of Ghana's Trade Data (2021-2023)".

Example Data Table

Year	Exports (USD)	Imports (USD)
2021	17.3 billion	19.4 billion
2022	20 billion	19.8 billion
2023	21 billion	20 billion

Example Bar Chart

- X-axis: 2021, 2022, 2023
- Y-axis: Trade Value (USD)

- Bars: Two bars for each year (one for exports, one for imports)

Questions for Discussion

1. What trends do you observe in Ghana's trade data over the three years?

2. How did the trade balance change from 2021 to 2023?

3. What factors might have contributed to the changes in exports and imports?

EXTENDED READING

- https://earth.org/challenges-farmers/

- https://www.thriveagric.com/resources/hectare/top-5-challenges-with-agriculture-in-africa-and-how-thrive-agric-is-tackling-them

- https://www.infosysbpm.com/blogs/manufacturing/manufacturing-industry-problems-solutions.html#:~:text=However%2C%20factors%20such%20as%20inflation,slow%20down%20the%20sector's%20growth

- https://testbook.com/key-differences/difference-between-internal-and-international-trade

- https://seller.alibaba.com/businessblogs/differences-between-domestic-and-international-trade-px126w5g

REVIEW QUESTIONS

1. Kwabena is a small-scale farmer in the Ashanti Region of Ghana. He grows maize and vegetables on a two-acre farm. His main challenges include unpredictable rainfall patterns that sometimes destroy his crops, lack of access to affordable fertilisers and quality seeds, poor road networks that make it difficult to transport his produce to market, and limited access to loans to expand his farm or buy better equipment.

   The government recently introduced a program to provide fertilizer subsidies and improve irrigation systems. However, Kwabena has not yet benefited from these initiatives because he doesn't have enough information about them.

   a. What are the main challenges Kwabena faces as a farmer?

   b. How does the lack of access to affordable fertilisers and quality seeds affect Kwabena's productivity?

   c. Why is unpredictable rainfall a problem for farmers like Kwabena?

   d. How can poor road networks affect Kwabena's ability to earn a good income?

   e. Suggest two ways the government can ensure that farmers like Kwabena benefit from agricultural programs.

2. In Asempa Village, the people depend on three main activities for their livelihood. Some people grow crops like maize, cassava, and cocoa, while others rear livestock. In the town near Asempa Village, there is a small factory that processes cassava into gari and cocoa into chocolate. However, the factory often struggles with electricity outages, old machines, and a shortage of skilled workers. Finally, in the market at the centre of the town, traders sell chocolate, gari, and other goods to consumers. Unfortunately, poor roads and high transportation costs make it difficult for traders to get their goods to market on time.

   a. Name the three sectors of the economy operating in Asempa village and its environs.

   b. State one activity that belongs to each sector in Asempa Village.

   c. Explain at least two importance of the three sectors identified in Asempa village.

   d. Explain at least two challenges of the manufacturing sector as identified in Asempa village.

   e. What solutions can be suggested to help improve the service sector in Asempa Village?

   f. Compare the challenges faced by the primary and secondary sectors in Asempa Village.

3. International trade refers to the exchange of goods and services between countries. It plays an important role in a country's economic growth and development. Ghana's involvement in international trade and the impact it has on the economy is overwhelming. Answer the following questions:

    a. List four each of countries Ghana exports goods to and imports from.

    b. Discuss three economic impacts of international trade in Ghana using real-world examples.

    c. Explain the challenges of international trade using real-world examples.

4. Kofi owns a small furniture business in Ghana. He manufactures chairs and tables and sells them to local stores in Accra, Kumasi, and Takoradi. Kofi also has a deal with a company in the United States, where he exports some of his furniture to be sold in American stores.

    a. Define Domestic Trade.

    b. Define International Trade.

    c. Where does Kofi sell his furniture locally?

    d. Which trade (domestic or international) do you think will have higher transportation costs for Kofi, and why?

    e. Explain how Kofi's business is affected by currency differences in international trade.

    f. Compare and contrast the legal risks Kofi faces in domestic trade versus international trade.

    g. If Kofi wants to expand his business further, which type of trade (domestic or international) would you suggest he focus on, and why?

Multiple Choice Questions

1. Which of the following is an example of an activity in the primary sector?
    A. Selling clothes in the market
    B. Processing tomatoes into paste
    C. Fishing on Lake Volta
    D. Repairing a broken car

2. The secondary sector in Ghana mainly involves:
    A. Growing crops
    B. Processing raw materials into finished goods
    C. Transporting goods to the market
    D. Offering banking service

3. Which of the following best describes an activity in the tertiary sector?

   A. Harvesting cocoa

   B. Turning cassava into gari

   C. Providing transport services for goods

   D. Mining for gold

4. A major problem faced by farmers in the primary sector is:

   A. Lack of modern tools

   B. Difficulty in selling processed goods

   C. Poor customer service

   D. Inadequate banking services

5. What is one challenge often faced by the secondary sector in Ghana?

   A. Unreliable rainfall

   B. Poor electricity supply

   C. Lack of customers for goods

   D. High transportation costs

6. Why do traders in the tertiary sector struggle to sell their goods in some areas?

   A. The goods are of low quality

   B. Poor road networks increase transportation costs

   C. Customers prefer imported goods

   D. Lack of raw materials to process

7. How can irrigation help farmers in the primary sector?

   A. Reduce the cost of farming tools

   B. Provide water during dry seasons

   C. Improve transportation to the market

   D. Increase the demand for goods

8. What is one way to solve the problem of poor electricity supply in the secondary sector?

   A. Use generators or solar power

   B. Train workers to process goods faster

   C. Build better roads

   D. Reduce the price of processed goods

9. What is the primary benefit of international trade?

   A. It reduces the variety of goods available to consumers.

   B. It allows countries to specialize in producing goods they are most efficient at.

    C. It increases tariffs and trade barriers.

    D. It leads to economic isolation.

10. What does a trade deficit occur when?

    A. A country's exports exceed its imports.

    B. A country's imports exceed its exports.

    C. A country has a balance between imports and exports.

    D. A country is only exporting goods and services.

11. Which of the following is an example of a non-tariff barrier?

    A. A tax imposed on imported goods

    B. A quota limiting the number of goods that can be imported

    C. Health and safety regulations on imported goods

    D. A tax on domestic goods to make imports less attractive

12. Which of the following trade agreements involves multiple countries, including Ghana?

    A. NAFTA (North American Free Trade Agreement)

    B. ECOWAS (Economic Community of West African States)

    C. ASEAN (Association of Southeast Asian Nations)

    D. EU (European Union)

ANSWERS TO REVIEW QUESTIONS

SECTION 1

1.

Economese	Definition
Opportunity Cost	The value of the next best alternative that is given up when making a decision.
Inflation	The rate at which the general level of prices for goods and services rises, leading to a decrease in the purchasing power of money over time.
Tax	A compulsory financial charge or levy imposed by a government on individuals, businesses, to fund public expenditures and government activities.
Marginal Utility	The additional satisfaction or benefit received from consuming one more unit of a good or service.
Supply	The total amount of a specific good or service that producers are willing and able to sell at various prices over a given time period.
Gross Domestic Product (GDP)	The total value of all goods and services produced within a country's borders in a specific time period
Unemployment rate	The number of unemployed individuals as a percentage of the labour force.
Demand	The quantity of a good or service that consumers are willing and able to purchase at various prices during a given time period.

2.

a. To calculate the market supply, sum the quantity supplied by each seller at each price

Price (Gh₵)	Quantity Supplied of Groundnut (Bowls)				
	Fatima	Agyei	Yayra	Kwansima	Market Supply
2	2	3	4	5	14
4	3	4	5	6	18
6	4	5	6	7	22

8	5	6	7	8	26
10	6	7	8	9	30

c. Draw the supply curves of Fatima, Agyei, Yayra and Kwansima

d. Draw the market supply curve

e. Compare and Contrast Individual Supply Curves with Market Supply Curve

Comparison

- Shape: Individual supply curves for each seller generally slope upward, indicating that as the price increases, the quantity supplied by each seller also increases. The market supply curve also slopes upward, as it is the sum of the quantity supplied by all sellers.

- Scale: The individual supply curves represent the quantity supplied by each seller, while the market supply curve represents the total quantity supplied by all sellers combined at each price level.

Contrast

- Quantity Supplied: Each seller may have different quantities supplied at the same price, reflecting their capacity and willingness to sell. However, the market supply curve shows these differences by aggregating all individual sellers' supplies.

- Price Sensitivity: Individual supply curves may differ in steepness based on each seller's unique circumstances (costs, resources), while the market supply curve reflects the overall market response to price changes.

3.

a. Calculation of Quantity Demanded:

When the price is Gh¢ 5,   When the price is Gh¢ 8,

$QA = 30 - 2(5) = 30 - 10 = 20kg$ $QA = 30 - 2(8) = 30 - 16 = 14kg$

$QB = 40 - 3(5) = 40 - 15 = 25kg$ $QB = 40 - 3(8) = 40 - 24 = 16kg$

When the price is Gh¢ 10,

$QA = 30 - 2(10) = 30 - 20 = 10kg$

$QB = 40 - 3(10) = 40 - 30 = 10kg$

b. Analysing the Results:

- At Gh¢ 5, Market A demands 20 kg, while Market B demands 25 kg.

- At Gh¢ 8, Market A demands 14 kg, while Market B demands 16 kg.

- At Gh¢ 10, both markets demand 10 kg.

- This shows that as the price increases, the quantity demanded decreases in both markets.

Multiple Choice Questions

1. B. An increase in the general price level of goods and services

2. C. The loss of potential gain from other alternatives when one alternative is chosen

3. C. Line graph

4. B. To make complex data visually appealing and easier to understand

5. D. 30

6. B. GHS 200

SECTION 2

1.

a. According to the law of demand, as the price of a good increases, the quantity demanded typically decreases, and vice versa. This means consumers' purchasing power (money) decreases as prices increase. In the data, as the prices of cassava rise from Gh¢2 to Gh¢6, the quantity demanded decreases from 1000 kg to 100 kg.

b. Graph for change in quantity demanded graph using the data in the table provided.

Change in the quantity demanded vs Price
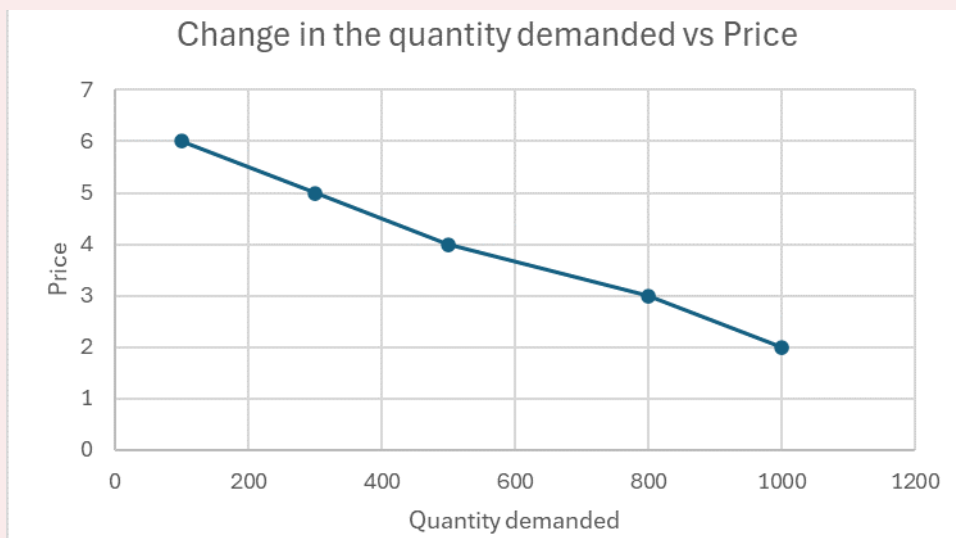
c. The relationship between price and quantity demanded of cassava demonstrates a classic downward-sloping demand curve. As the price of cassava increases from Gh¢2 to Gh¢6, the quantity demanded decreases significantly from 1000 kg to 100 kg. This negative correlation indicates that:

- The quantity demanded moves in the opposite direction to price changes. Higher prices discourage consumption, while lower prices encourage it.

- The steep decline in quantity demanded suggests that consumers are sensitive to price changes, likely due to cassava being a staple food with available substitutes.

d. If the price of cassava decreases, consumer behaviour is likely to change in several ways:

- Increased Demand: As prices fall, consumers will likely purchase more cassava. This could be reflected in higher consumption levels, especially in households that consider cassava as a primary staple.

- Substitution Effect: Cassava becomes a more attractive option compared to other staples when the price decreases. Consumers may shift back from alternatives to cassava, increasing its market share.

- Perceived Value: A lower price may enhance the perceived value of cassava among consumers, leading to increased loyalty and preference for cassava as a staple food.

- Budget Reallocation: Families may reallocate their food budgets to include more cassava, allowing them to save on food costs while enjoying a vital source of carbohydrates.

e. A decrease in the price of cassava can have several implications for farmers and the market:

- Revenue Impact: Farmers may experience a decrease in revenue per kilogram sold, which could affect their profitability, especially if production costs remain high.

- Market Demand: Increased consumer demand due to lower prices could lead to higher overall sales volume, potentially offsetting the lower price per unit and maintaining total revenue.

- Production Decisions: Farmers might adjust their production strategies, potentially increasing cassava planting in response to higher demand, but they need to balance this with market pricing to avoid oversupply.

- Food Security: Lower prices can enhance food security for consumers, making essential staples more affordable. This can lead to better nutrition and improved health outcomes in communities.

f. Two policies the government could implement to stabilise cassava prices and ensure food security:

- Price Stabilisation Fund: The government could establish a price stabilisation fund to help manage fluctuations in cassava prices. This fund could buy cassava from farmers during periods of low prices to support their income and release stocks during high demand periods, thus keeping prices stable for consumers.

- Support for Agricultural Practices: Implementing policies that promote sustainable agricultural practices and provide farmers with access to better technology and training can enhance yields and resilience to weather-related shocks. This could include investment in irrigation systems, drought-resistant cassava varieties, and financial support for farmers facing crop failures.

2.

a. Four possible factors that may affect the demand for the textbook:

- Price of the textbook
- Income of students
- Popularity of the subject
- Availability of alternative resources (textbooks)

b. When the price of the textbook decreases from GHS 100 to GHS 80, the quantity demanded increases. This means that more students are willing and able to buy the textbook at a lower price. This change does not affect the overall demand for textbooks but rather reflects a movement along the demand curve due to the price change.

c. A change in price (like the drop from GHS 100 to GHS 80) leads to a change in quantity demanded, that is, more students buy the textbook because it is cheaper.

In contrast, an increase in overall demand occurs when external factors (like more students interested in Economics) cause the entire demand curve to shift to the right, meaning that even at the same price, more textbooks are wanted than before.

d. Graphical illustration of a change in quantity demanded and a change in demand using different commodities

- Change in Quantity Demanded (Commodity: Economics Textbook)
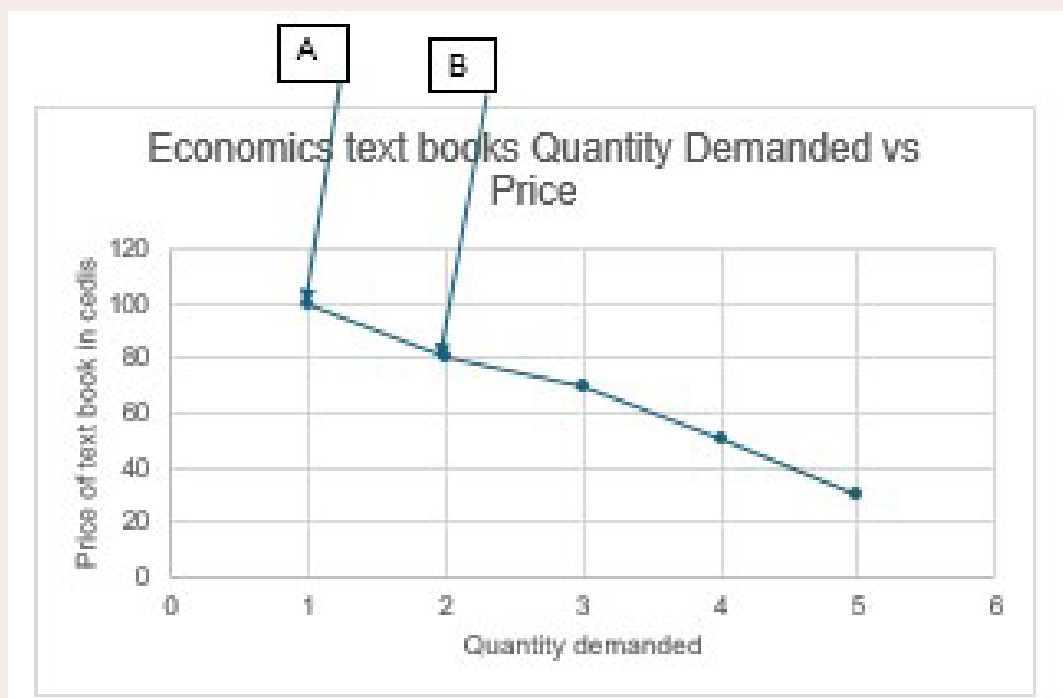
- Change in demand (Commodity: Smartphones)
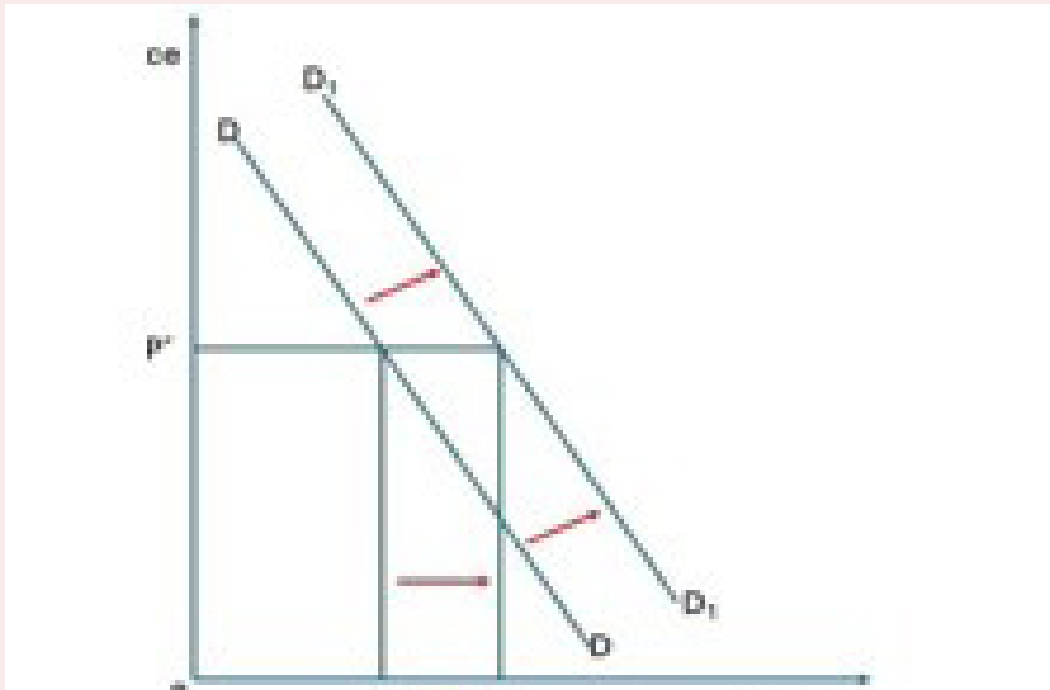
The introduction of a new smart phone at the same price causes an increase in demand

Multiple Choice Questions

1. C. It increases
2. B. It decreases
3. C. As the price increases, the quantity demanded decreases
4. D. The price of the good itself
5. C. Demand increases
6. B. Demand will decrease

SECTION 3

a. Ama's budgeting and Marginal Utility: Ama's budgeting directly relates to marginal utility because she needs to allocate her limited income in a way that maximises her total satisfaction. When deciding how much rice to buy, Ama considers the additional satisfaction (marginal utility) she gains from each extra serving of rice. As long as the marginal utility of spending her next cedi on rice is higher than spending it on other items, she will buy more rice. Therefore, she will allocate her budget where the marginal utility per unit of currency spent is equalised across all goods she consumes.

b. Law of Diminishing Marginal Utility and Ama's Budget: The law of diminishing marginal utility states that as Ama consumes more rice, the

additional satisfaction she gains from each subsequent serving decreases. Initially, the first few servings of rice provide high marginal utility because she enjoys them greatly. However, after a certain point, each additional serving provides less additional satisfaction than the previous one. This diminishing marginal utility affects her budget because it means that at some point, spending her money on other goods or services might provide more satisfaction than spending it on additional rice. Thus, Ama must balance her spending to ensure she gets the most satisfaction from her limited budget, considering that the more she consumes of one good, the less additional satisfaction she receives from each new unit.

a. Calculation of marginal and average utilities

At consumption level 1

$$MU_1 = \frac{\Delta TU}{\Delta Q} = \frac{TU_1 - TU_0}{Q_1 - Q_0} = \frac{10-0}{1-0} = 10 \; utils$$

$$AU_1 = \frac{TU}{Q} = \frac{10}{1} = 10 \; utils$$

At consumption level 2

$$MU_2 = \frac{\Delta TU}{\Delta Q} = \frac{TU_2 - TU_1}{Q_2 - Q_1} = \frac{18-10}{2-1} = 8 \; utils$$

$$AU_2 = \frac{TU}{Q} = \frac{18}{2} = 9 \; utils$$

Summary of Marginal and Average Utilities

Units	Total Utility (TU)	Average Utility (AU)	Marginal Utility (MU)
1	10	10	10
2	18	9	8
3	24	8	6
4	28	7	4
5	30	6	2

b. The consumer will be in equilibrium at consumption level 5 because at this level the marginal utility (6 utils) is equal to the price (Gh₵ 6) of the product.

c. When marginal utility is greater than average utility, it pulls the average utility up. For example, the marginal utility of the first unit (10) is equal to the average utility at that point.

As marginal utility falls below average utility, it pulls the average utility down. For instance, when the marginal utility of the 4th unit is 4, and the average utility is 7, the average continues to decline as additional units are consumed.

3.

a. Total Utility (TU) is the Total satisfaction derived from consuming all the units of the commodity.

Marginal Utility (MU) is the Additional satisfaction derived from consuming one more unit of the commodity.

Average Utility (AU) is the TU divided by the number of units of X consumed.

b. Total Utility refers to the overall satisfaction a consumer derives from consuming a certain quantity of a good or service. For example, if consuming 3 slices of pizza gives you a total satisfaction of 15 utils, then (TU = 15) for those 3 slices.

Marginal Utility is the additional satisfaction derived from consuming one more unit of a good or service. It can decrease as more units are consumed due to the law of diminishing marginal utility. For example, if the satisfaction from the 4th slice of pizza increases your total utility from 15 to 18 utils, the MU of the 4th slice is 3 utils (18 - 15 = 3).

Average Utility is the total utility derived from consuming a certain quantity of a good or service divided by the number of units consumed. It provides an average measure of satisfaction per unit. For example, if your total utility from 3 slices of pizza is 15 utils, then AU = TU / Quantity = 15 utils / 3 slices = 5 utils per slice.

4.

a. Summary of calculations of marginal and average utilities

Units of X	Total Utility (TU)	Average Utility (AU)	Marginal Utility (MU)
1	12	12	12
2	20	10	8
3	25	8.33	5
4	28	7	3
5	29	5.8	1
6	27	4.5	-2

b. Graphs for Total Utility (TU), Marginal Utility (MU), and Average Utility (AU) curves using the above schedule.

Graph to show utility curves for good X
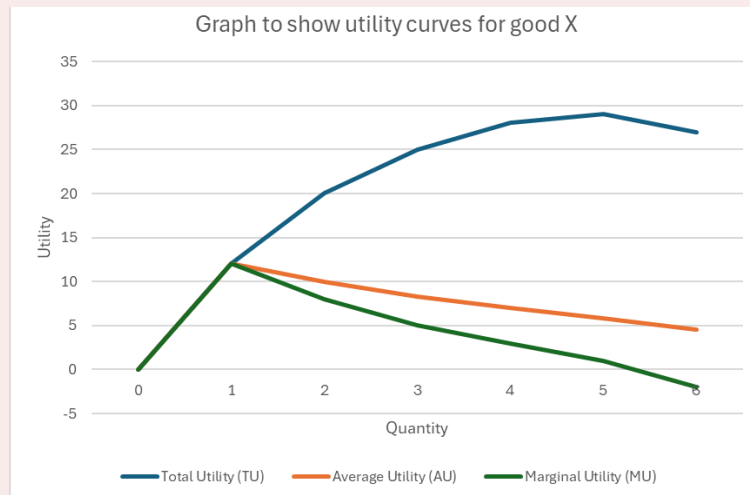
c. Total Utility (TU) increases with each unit consumed, but the rate of increase diminishes, reaching a peak before starting to decrease at the sixth unit. This reflects the consumer's overall satisfaction with increasing consumption.

Marginal Utility (MU) shows the change in total utility with each additional unit consumed. Initially, MU is positive and high, reflecting increasing satisfaction. However, it begins to decrease, indicating diminishing marginal returns. Notably, MU becomes negative with the sixth unit, indicating a loss in satisfaction.

Average Utility (AU) the AU decreases as more units are consumed. It starts at a high value and drops as the marginal utility declines, reflecting the average satisfaction derived per unit.

Multiple Choice Questions

1. C. Marginal Utility

2. B. Law of Diminishing Marginal Utility

3. B. Decreases

4. C. 35

5. C. Initially increases, then decreases

SECTION 4

a. Time periods
- Short Run
- Long Run

b. Explanation of the two time periods in terms of the factors of production for Abena's shop.
- Short-Run Time Period: In the short run, at least one factor of production is fixed. For Abena's shop, this might mean the number of

workers, equipment, or the size of the workshop cannot be changed quickly. Production can be increased by adding more raw materials or working extra hours, but significant changes like expanding the workshop or investing in new machinery cannot be done immediately.

- Long-Run Time Period: In the long run, all factors of production are variable. For Abena's shop, this means they can adjust the number of workers, expand the workshop, invest in new technology, and change other resources to increase production. The long run allows the business to make more substantial and strategic changes to improve efficiency and output.

a. Determine the Total Product values for A, B, and C:

Total Product A (for Labour 3)

$TP_3 = TP_2 + MP_3$

$TP_3 = 250 + 200$

$TP_3 = 450$ Bottles of water

Total Product B (for Labour 5)

$TP_5 = L_5 \times AP_5$

$TP_5 = 5 \times 140$

$TP_5 = 700$ Bottles of water

Total Product C (for Labour 7)

$TP_7 = TP_6 + MP_7$

$TP_7 = 750 + 0$

$TP_7 = 750$ Bottles of water

b. Estimate the Marginal and Average Products:

For Labour 2 (D):

$$MP = \frac{\Delta TP}{\Delta Q} = \frac{TP_2 - TP_1}{Q_2 - Q_1} = MP = \frac{250 - 100}{2 - 1} = 150 \text{ Bottles of water}$$

For Labour 4 (H)

$$AP_4 = \frac{TP4}{Q} = \frac{600}{4} = 150 \text{ Bottles of water}$$

Labour	Total Product (TP)	Marginal Product (MP)	Average Product (AP)
1	100	100	100
2	250	150	125

3	450	200	150
4	600	150	150
5	700	150	140
6	750	50	125
7	750	0	107.14
8	700	-50	87.5

c. Assuming a fixed capital of 100, Estimation of the Total Factor Productivity (TFP) for levels 1, 2, 5, 6, and 8 of labour employed:

At employment level 1: $\text{TFP} = \dfrac{TP}{L+K} = \dfrac{100}{(1+100)} = 0.99$

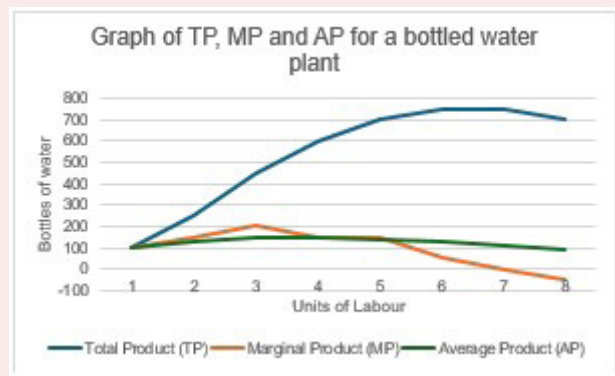At employment level 2: $\text{TFP} = \dfrac{TP}{L+K} = \dfrac{250}{(1+100)} = \dfrac{250}{(102)} = 2.45$

At employment level 5: $\text{TFP} = \dfrac{TP}{L+K} = \dfrac{700}{(5+100)} = \dfrac{700}{(105)} = 6.67$

At employment level 6: $\text{TFP} = \dfrac{TP}{L+K} = \dfrac{750}{(6+100)} = \dfrac{750}{(106)} = 7.08$

At employment level 8: $\text{TFP} = \dfrac{TP}{L+K} = \dfrac{700}{(8+100)} = \dfrac{700}{(108)} = 6.48$

d. TP, MP, and AP curves using the table in (b) above.

e.

Graph of TP, MP and AP for a bottled water plant

f. Stages of production in the curve:

- Stage 1: Increasing returns (Labour 1 to 4). That is, TP rises at an increasing rate, and MP is high.
- Stage 2: Diminishing returns (Labour 4 to 6). That is, TP continues to rise but at a decreasing rate, while MP starts to decline and can drop to zero.
- Stage 3: Negative returns (Labour 7 and beyond). That is, TP starts to fall, indicating overuse of labour.

3.

    a. Methods of production.

- Capital-Intensive Production
- Labour-Intensive Production

    b. Capital-Intensive: In Ghana, a large-scale rice farm may use advanced machinery for planting, irrigating and harvesting rice. For example, a farmer might invest in tractors and harvesters to increase efficiency and output. This requires a higher initial investment but allows the farmer to produce large quantities with fewer workers.

Labour-Intensive: A cocoa farm in Ghana often relies on hand-picking cocoa pods and manual labour for processing. Farmers and seasonal workers play a crucial role in the production process, making it labour-intensive. This method may result in lower initial costs but requires a larger workforce to manage the tasks.

    c. Capital-Intensive: A large poultry farm in Ghana uses automated feeding systems and climate control technology to manage thousands of birds efficiently. This setup minimises labour costs and maximises production through technology, highlighting a capital-intensive approach.

Labour-Intensive: In contrast, a small-scale vegetable farm relies on local farmers to plant, tend, and harvest crops. The farmers work manually without significant machinery. This method depends on the availability and cost of labour, making it a labour-intensive production process.

4.

    a. Fixed Costs (FC):

- Rent for the Bakery (Gh¢ 1,000)
- Salaries of Permanent Staff (Gh¢ 800)
- Depreciation on Equipment (Gh¢ 200)

Variable Costs (VC)

- Raw Ingredients (Gh¢ 0.50 per loaf)
- Utilities (average Gh¢ 300)
- Packaging Supplies (Gh¢ 0.50 per loaf)

    b. Total Fixed Costs (FC): Gh¢ 1,000 + Gh¢ 800 + Gh¢ 200 = Gh¢ 2,000

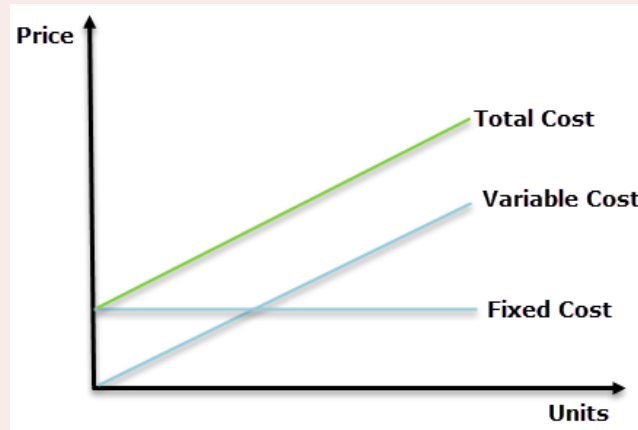Total Variable Costs (VC): Gh¢ 300 + (Gh¢ 0.5 x 500) + (Gh¢ 0.5 x 500)

$$Gh¢\ 300 + Gh¢\ 250 + Gh¢\ 250$$

$$Gh¢\ 800$$

Total Costs (TC): TC = FC + VC = Gh¢ 2000 + Gh¢ 800 = Gh¢ 2,800

    c. sketched FC, TC and VC curves on the same graph sheet.

Fixed Cost (FC) Curve: A horizontal line since fixed costs remain constant regardless of the level of production.

Variable Cost (VC) Curve: An upward sloping line since variable costs increase with the level of production.

Total Cost (TC) Curve: Starts at the level of fixed costs and slopes upward, reflecting the sum of fixed and variable costs.

5.

a. Calculation of TVC of Mubarak Enterprise when quantity produced is 2, 5 and 10.

TVC at quantity 2 (M)	TVC at quantity 5 (N)	TVC at quantity 10 (O)
$TVC_2 = TC_2 - FC_2$	$TVC_5 = TC_5 - FC_5$	$TVC_{10} = TC_{10} - FC_{10}$
$TVC_2 = 820 - 500$	$TVC_5 = 970 - 500$	$TVC_{10} = 1580 - 500$
$TVC_2 = Gh\text{¢} 320$	$TVC_5 = Gh\text{¢} 470$	$TVC_{10} = Gh\text{¢} 1080$

b. Calculation of TC of the enterprise when the quantity is 3, 6 and 9.

TC at Quantity 3 (P)	TC at Quantity 6 (Q)	TC at Quantity 9 (R)
$TC_3 = FC_3 + TVC_3$	$TC_6 = FC_6 + TVC_6$	$TC_9 = FC_9 + TVC_9$
$TC_3 = 500 + 400$	$TC_6 = 500 + 520$	$TC_9 = 500 + 890$
$TC_3 = Gh\text{¢}900$	$TC_6 = Gh\text{¢}1020$	$TC_9 = Gh\text{¢}1390$

c. Determination of the values for AFC, AVC, MC, and ATC for all quantities for the enterprise:

At quantity 2:

$$AFC_2 = \frac{FC}{Q} = \frac{500}{2} = Gh\text{¢} 250 \qquad AVC_2 = \frac{TVC}{Q} = \frac{320}{2} = Gh\text{¢} 160$$

$$MC_2 = \frac{DTC}{DQ} = \frac{TC_2\,TC_1}{Q_2 - Q_1} = \frac{820 - 700}{2 - 1} = Gh\text{¢} 120 \qquad ATC_2 = \frac{TC_2}{Q} = \frac{820}{2} = Gh\text{¢} 410$$

Summary of the calculations:

Quantity	Total Fixed Cost (TFC) (Gh¢)	Total Variable Cost (TVC) (Gh¢)	Total Cost (TC) (Gh¢)	Average Fixed Cost (AFC) (Gh¢)	Average Variable Cost (AVC) (Gh¢)	Marginal Cost (MC) (Gh¢)	Average Total Cost (ATC) (Gh¢)
0	500	0	500	-	-	-	-
1	500	200	700	500	200	200	200
2	500	320	820	250	160	120	410
3	500	400	900	166.67	133.33	80	300
4	500	440	940	125	110	40	235
5	500	470	970	100	94	30	194
6	500	520	1020	83.33	86.67	50	170
7	500	610	1110	71.43	87.14	90	158.57
8	500	730	1230	62.50	91.25	120	153.75
9	500	890	1390	55.56	98.89	160	154.44
10	500	1080	1580	50	108	190	158

d. At quantity zero (0), Mubarak Enterprise has not produced any goods and therefore, there are no variable costs incurred. Variable costs are associated with production activities (like raw materials and labour), which do not exist when no production occurs.

e. Total Cost (TC) is the sum of Total Fixed Cost (TFC) and Total Variable Cost (TVC).

TFC stays constant regardless of output level, while TVC changes with the quantity produced.

As production increases, TVC rises, leading to an increase in TC. The difference between TC and TFC is the variable costs incurred by the enterprise.

This relationship illustrates how fixed costs contribute to the baseline expenses of the business, while variable costs fluctuate based on production levels, thus affecting overall profitability and cost management strategies.

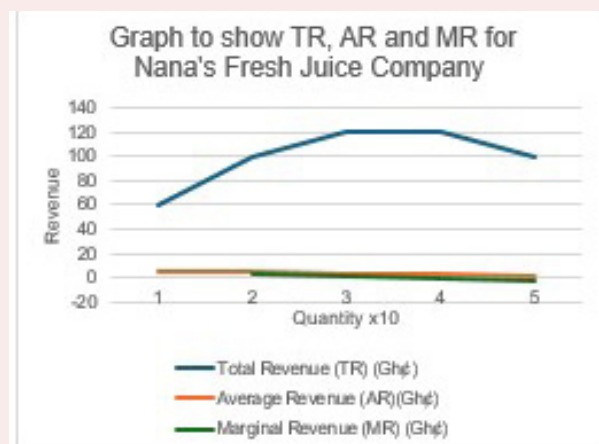**a.** Revenue is the total money a business receives from selling its goods or services.

b. In Nana's fresh juice company, revenue is generated from selling bottles of fruit juice. If the company sells each bottle for Gh¢ 6 and sells 2,000 bottles in a month, its revenue for that month would be Gh¢ 12000, thus (Gh¢ 6 × 2000). Hence, Nana's revenue for the month is Gh¢ 12,000, which represents the total income from the bottles of fruit juice sold.

c. Revenue refers to the total income generated from sales, while profit is the amount remaining after all expenses have been deducted from revenue. In Nana's case, her revenue for the month is Gh¢ 12,000. However, she incurs total costs of Gh¢ 9,600. The company's profit would be Gh¢ 2400, that is (12,000 – 9,600). So, while Nana's revenue is Gh¢ 12,000, her profit after covering her costs is Gh¢ 2,400.

7.

a. The completed table should look like this:

Quantity	Price per unit (Gh¢)	Total Revenue (TR) (Gh¢)	Average Revenue (AR) (Gh¢)	Marginal Revenue (MR) (Gh¢)
10	6	60	6	-
20	5	100	5	4
30	4	120	4	2
40	3	120	3	0
50	2	100	2	-2

b. Graph should look like this:

c. There is no entry in the MR cell on the first line because MR is not applicable for the first quantity. MR is generated considering change in total revenue from consecutive values as there was not value before the total revenue one cannot be calculated.

d. Key Relationships:

When MR > 0: Selling more increases TR and can be profitable.

When MR = 0: TR is at its peak; no additional profit is gained by selling more units.

When MR < 0: Selling more decreases TR and can reduce profitability.

In summary, for a business to maximise its profitability, it should aim to produce and sell up to the point where MR is positive but not beyond where it turns negative. In Nana's case it is not profitable to sell below a price of 30 bottles for 4 cedis each.

8.

a. Total Fixed Costs (TFC)

Fixed costs do not vary with production levels. They are constant irrespective of the number of units produced.

- Rent: Gh¢1,000
- Salaries for two employees: Gh¢2,000 each = Gh¢4,000
- Insurance: Gh¢500
- Equipment lease: Gh¢300
- Utilities (fixed part): Gh¢200

Total Fixed Costs (TFC):

TFC=1,000+4,000+500+300+200=Gh¢**6,000**

Total Variable Costs (TVC)

Variable costs change with the level of production.

- Ingredients: Gh¢1 per unit
- Packaging: Gh¢0.20 per unit
- Utilities (variable part): Gh¢0.05 per unit
- Labour (overtime for peak hours): Gh¢0.50 per unit

For 1,000 units:

TVC = (1+0.20+0.05+0.50) **×1,000=1.75×1,000=Gh¢1,750**

Total Costs (TC)

TC = **6,000+1,750=** Gh¢7,750

b. Calculate Average Fixed Costs (AFC), Average Variable Costs (AVC), Marginal Costs (MC), and Average Total Costs (ATC)

Average Fixed Costs (AFC)

AFC=TFC/Quantity Produced

AFC=6,000/1,000=Gh¢ 6

Average Variable Costs (AVC)

AVC=TVC/Quantity Produced

AVC=1,750/1,000=Gh¢1.75

Marginal Costs (MC)

Marginal Cost is the cost of producing one additional unit. Since the variable costs per unit are constant:

MC=Variable Cost per unit

MC=1+0.20+0.05+0.50=Gh¢1.75

Average Total Costs (ATC)

ATC=TC/Quantity Produced

ATC=7,750/1,000=Gh¢7.75

c. The curve sketch should follow this pattern:

You should plot the costs (y-axis) against the quantity produced (x-axis):

- Total Fixed Costs (TFC): This will be a horizontal line at Gh¢6,000.

- Total Variable Costs (TVC): This will be a straight line starting from the origin (0,0), with a slope of 1.75, indicating Gh¢1.75 per unit.

- Total Costs (TC): This curve will start from Gh¢6,000 (the fixed costs) and increase linearly with the slope of 1.75.

- Average Fixed Costs (AFC): This will be a downward-sloping curve since fixed costs are spread over more units as production increases.

- Average Variable Costs (AVC): This will be a horizontal line at Gh¢1.75.

- Marginal Costs (MC): This will also be a horizontal line at Gh¢1.75.

- Average Total Costs (ATC): This will be a curve that starts high (due to high AFC) and decreases as AFC spreads over more units, eventually approaching AVC and MC.

For a range of quantities from 100 to 1000 units the data looks like this:

Quantity	TFC (Gh¢)	TVC (Gh¢)	TC (Gh¢)	AFC (Gh¢/unit)	AVC (Gh¢/unit)	MC (Gh¢/unit)	ATC (Gh¢/unit)
100	6,000	175	6,175	60.00	1.75	1.75	61.75
200	6,000	350	6,350	30.00	1.75	1.75	31.75
300	6,000	525	6,525	20.00	1.75	1.75	21.75
400	6,000	700	6,700	15.00	1.75	1.75	16.75
500	6,000	875	6,875	12.00	1.75	1.75	13.75
600	6,000	1,050	7,050	10.00	1.75	1.75	11.75
700	6,000	1,225	7,225	8.57	1.75	1.75	10.32

800	6,000	1,400	7,400	7.50	1.75	1.75	9.25
900	6,000	1,575	7,575	6.67	1.75	1.75	8.42
1,000	6,000	1,750	7,750	6.00	1.75	1.75	7.75

Note that the data means that the curves for AFC, AVC, MC and ATC overlay each other. The curves should look like this:
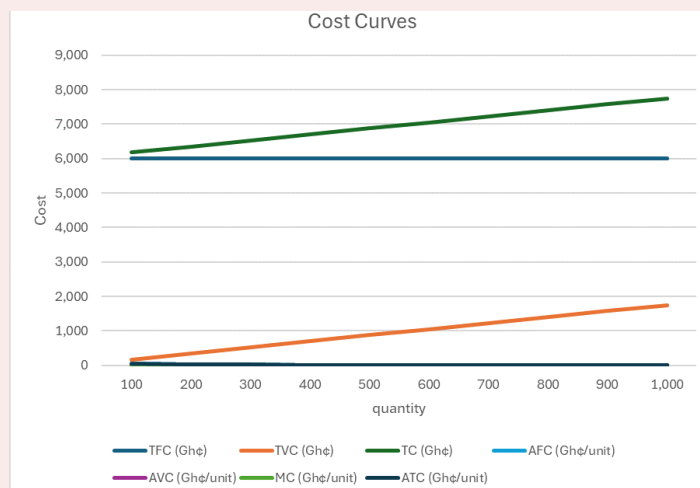
d. Explain the Relationships Between the Cost Curves

- AFC continuously decreases as production increases because the fixed costs are spread over more units.

- AVC remains constant because variable costs per unit do not change.

- MC intersects ATC and AVC at their lowest points since producing one more unit will initially lower the average total costs until a certain point.

- ATC initially decreases due to the spreading of fixed costs but eventually approaches AVC as output increases and AFC diminishes.

Multiple Choice Questions

1. C. The total output produced by a firm

2. B. MP = Change in TP / Change in Inputs

3. B. Stage II

4. C. Resources used in the production process

5. A. AC = Total Cost / Total Output

6. C. The total income received from sales

7. C. MR = Change in TR / Change in Quantity Sold

8. B. Average Revenue curve

9. D. The total revenue divided by the total output

SECTION 5

1.

a. Change in quantity supplied in the change (decrease or increase) in the quantity of commodity producers are willing and able to offer for sale as a result of change in the price.

b. The farmers responded by increasing the supply of tomatoes from 100 kilograms to 150 kilograms.

c. The law of supply states that "all other things being equal" more of the commodity is supplied at a higher price and less is supplied at a lower price. From the scenario, as the price increased, the quantity supplied also increased.

d. The farmer will decrease the supply because the price has fallen, and his profit margin will fall.

e. The relationship between price and quantity supplied on a graph sheet.

Price-Quantity Supplied Relationship

2. Change in quantity supplied

a. Quantity supplied increased from 100 to 200 units

b. Quantity supplied increased from 150 units to 150 units.

c. The quantity supplied will be 300 units.

d. Quantity supplied will decrease to 100 units.

3.

a. Change in supply

b. Factors affecting the decrease in supply

- Increase in the price of fertilisers leading to an increase in production cost.

- Decrease in the number of cocoa farmers

c. A graph of change in supply with a fixed price.
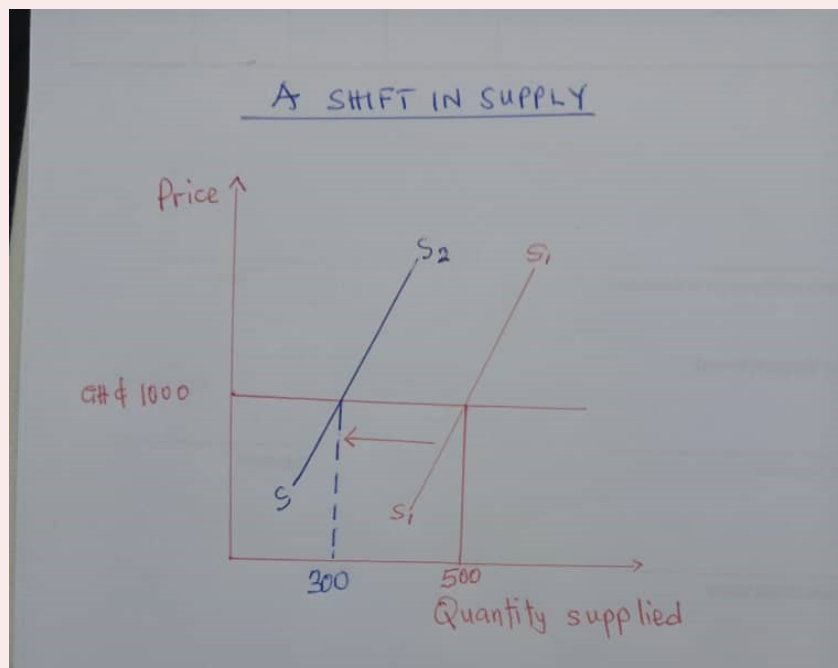
d. Factors affecting the increase in supply

- Improvement in the farming method due to improved technology.
- Reduction in taxes on inputs and granting of subsidies to farmers

e. Differences between change in quantity supplied and change in supply

Change in quantity supplied	Change in supply
Increase or decrease in the quantity supplied of a commodity due to changes in the price of the commodity.	Refers to the increase or decrease in the supply of a commodity as a result of changes in the other factors
It is caused by changes in price	It is caused by changes in the other factors of supply like weather, government policy, and cost of production.
It involves movement on the same supply curve	It involves a bodily shift in the supply to the right or left

Multiple choice

1. C
2. B
3. B
4. C
5. B
6. C

SECTION 6

a. Perfect competition, monopoly and Monopolistic competition.

b. Types of market

    i.   Perfect competitive market

    ii.   Monopoly Market

    iii. Monopolistic competition

c. Reasons for classifying the market

- There are many shops selling bread at the same price and none of the sellers can influence the price.
- Nyamekye Company Limited is the only supplier of water in the town.
- Many shops are selling mobile phones, but each is unique. There are a lot of advertisements also in the market.

d. Ways of advertising a product

- Offer Competitive Pricing by Providing discounts, promotional offers and instituting payment plans.
- Improve Customer Service by offering after-sales services like free repairs and warranty extensions.
- Advertise uniquely using social media and local radio.

e. Differences between the Perfect Competition and Monopolistic Competition

- **In perfect competition (Bread Market):** All products (bread) are identical or homogeneous while in monopolistic competition (Mobile Phone Market), products (phones) are differentiated by brand, design, or features.
- **In perfect competition (Bread Market)**, no seller has control over prices; they accept the market price. While in monopolistic competition (Mobile Phone Market), sellers have some control over prices due to product differentiation and brand loyalty.

a. Normal Profits, Supernormal profits and subnormal profits(loss)

b. Because the tomato sellers are operating in a perfectly competitive market.

c. The Akuafo Water Company is the only supplier in town making it a monopoly and therefore charging a higher price.

d. **Diagram of the Supernormal profit of the Monopoly.**

MONOPOLY
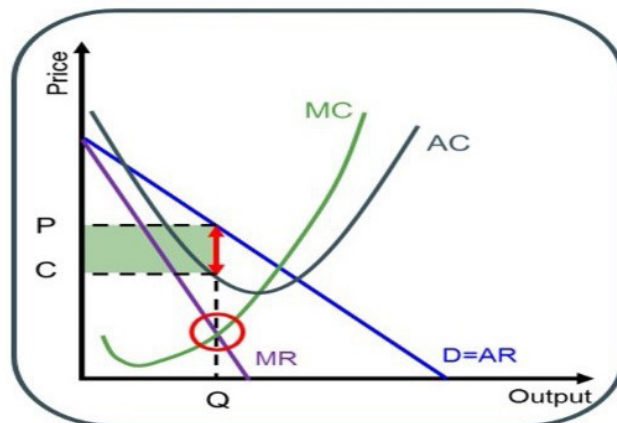
Super-normal Profit Earned

e. Perfect Competition **(Tomato Sellers)**:

Firms earn normal profit in the long run because many sellers are offering identical products. Any supernormal profit in the short run attracts new firms, increasing competition and driving profits down to normal levels.

Monopolistic Competition (**Hairdressers**):

Firms may earn supernormal profit in the short run due to product differentiation (unique styles or services). In the long run, the entry of new firms erodes supernormal profit, leading many firms to earn normal profit as competition increases.

Multiple Choice Questions

1. B
2. C
3. B
4. B
5. C
6. B
7. C
8. C
9. C
10. A

SECTION 7

a. Market equilibrium occurs when the quantity of a good or service demanded by consumers equals the quantity supplied by producers at a particular price. There is neither a shortage nor a surplus of goods in the market, and the forces of supply and demand are balanced.

b. The **quantity demanded** (the amount consumers want to buy) equals the **quantity supplied** (the amount producers are willing to sell) at a specific price. If the price is too high, there will be a surplus (supply exceeds demand), and prices may fall to restore equilibrium. If the price is too low, there will be a shortage (demand exceeds supply), and prices may rise to restore equilibrium.

c. The **price** remains stable because the amount buyers want to purchase equals the amount sellers are willing to supply. The **quantity** traded is the amount where both consumers and producers are satisfied with the price, and no further adjustments are necessary.

d. The supply and demand curves

Cocoa Market in Ghana
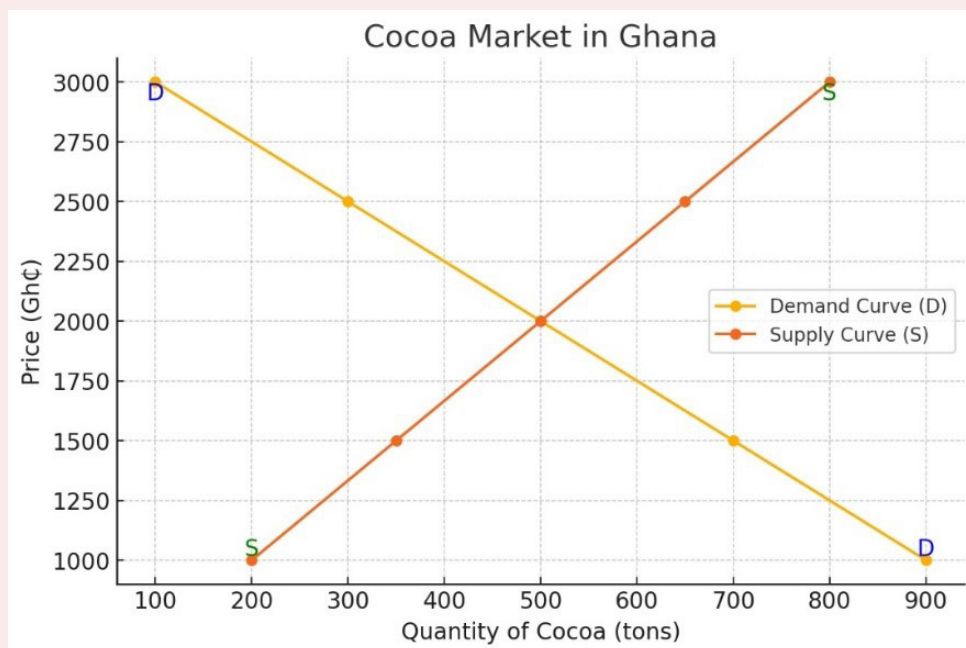
e. The equilibrium point on the graph is where the **demand curve** and **supply curve** intersect. This point represents the price and quantity where the quantity demanded equals the quantity supplied, with no surplus or shortage. In the cocoa market, the equilibrium occurs at a price of **Gh₵ 2000**, where both the quantity demanded and supplied are **500 tons**. On the graph, this is the point where the two curves meet.

f. In this market, the equilibrium price is **Gh₵ 2000**, and the equilibrium quantity is **500 tons** of cocoa. At this price, consumers are willing to buy 500 tons, and producers are willing to sell 500 tons. If the price were above Gh 2000 (e.g., Gh₵ 2500), the quantity supplied would be greater than the quantity demanded, leading to a surplus. On the other hand, if the price

were below Gh 2000 (e.g., Gh₵1500), the quantity demanded would exceed the quantity supplied, leading to a shortage.

a. The equilibrium condition in a market occurs when the quantity demanded equals the quantity supplied at a particular price. This condition can be represented by setting the demand function equal to the supply function and solving for the price (P) and quantity (Q).

b. The demand and supply functions for the yam market

- The demand function is: $Qd = 150 - 3P$

  (where P is the price of yam per tuber, and Qd is the quantity of yam demanded at price P).

- The supply function is: $Qs = 30 + 4P$

  (where P is the price of yam per tuber, and Qs is the quantity of yam supplied at price P).

c. Calculation of the equilibrium price and quantity for yam.

At equilibrium, the quantity demanded (Qd) is equal to the quantity supplied (Qs)

$Qd = Qs$

$150 - 3P = 30 + 4P$

$150 - 30 = 4P + 3P$

$120 = 7P$

$P = Gh\ 7.14$

Substitute the price back into either the demand or supply equation to find the equilibrium quantity.

Using the demand function:

$Qd = 150 - 3(17.14)$

$Qd = 150 - 51.42$

$Qd = 98.58\ tubers\ of\ yam$

Thus, the **equilibrium price** is approximately **Gh₵17.14** per tuber, and the **equilibrium quantity** is approximately **99 tubers**.

d. The equilibrium price of **Gh₵ 17.14** means that at this price the **quantity of yams demanded** by consumers is equal to the **quantity of yams supplied** by producers. At this price, there is no surplus or shortage in the market. Consumers and producers are both satisfied with the price, and transactions will occur efficiently. If the price were higher or lower, either a surplus or shortage would arise, causing the market to adjust until the equilibrium price is reached again.

Multiple choice Question

1. C
2. C
3. A
4. A
5. D
6. B
7. D
8. C
9. B
10. A

SECTION 8

a. Gross Domestic Product (GDP) is the total value of all goods and services produced in a country within a specific period, usually a year. It reflects the health of a country's economy. High GDP indicates strong production and wealth, leading to better living standards, while low GDP suggests economic struggles, potentially resulting in unemployment and poverty.

b. Inflation is when the prices of goods like food, clothing, and transport rise over time, causing money to lose its value. For example, if a loaf of bread increases from Gh₵ 2 to Gh₵ 3, that's inflation. It makes everyday items more expensive, which can make life harder for people as they need more money to buy the same things.

c. Positive and negative effects of inflation on GDP.

Positive Effects of Inflation:

- Encourages Spending and Investment: Low or moderate inflation can motivate people and businesses to spend and invest, as they expect future prices to rise. This boosts production and economic growth, increasing GDP.

- Helps Pay Off Debts: Inflation can make it easier for governments or businesses to repay loans, as they pay back with money that is worth less than when they borrowed it. This can encourage more investment in the economy.

Negative Effects of Inflation:

- Reduces Purchasing Power: As inflation increases, money loses value, meaning people can buy less with the same amount. This reduces living standards and can negatively impact the economy and GDP.

- Increases Costs for Businesses: High inflation raises production costs for businesses. To cover these costs, they may increase prices, leading to reduced sales and slower GDP growth.

d. Effect of changes in the unemployment rate on GDP.

Unemployment is when people who are willing and able to work cannot find jobs. An increase in unemployment means fewer people are working, leading to lower GDP due to reduced production. Conversely, a decrease in unemployment boosts job creation, increasing the production of goods and services, which raises GDP and strengthens the economy.

e. Effect of a Change in Inflation on GDP

When inflation rises too quickly, it can harm the economy. Higher prices may make basic goods unaffordable, and businesses might raise their prices, leading to lower demand. This can slow down the economy and shrink GDP. However, stable inflation encourages spending and investment, which can boost GDP and support steady economic growth.

f. Impact of Rising Unemployment on Ghana's GDP

Increased unemployment in Ghana means more people are without jobs and not spending money. This reduces demand for goods and services, and businesses may cut back on production due to fewer workers. As a result, the economy slows down, leading to lower GDP. Over time, high unemployment can cause social issues, like poverty, and hinder overall economic growth.

a. Types of control policies
- Monetary Policy
- Fiscal Policy
- Exchange-Rate Policy
- Trade Policy

b.
- Lowering interest rates makes borrowing cheaper, encouraging businesses and people to borrow more, which boosts spending, and investment, and reduces unemployment.
- Increasing the money supply puts more money into the economy, leading to more spending, investment, and job creation, which helps reduce unemployment.

c.
- Increasing government spending on public projects creates jobs, boosts demand for goods and services and helps reduce unemployment by encouraging businesses to produce more.

- Reducing taxes gives people and businesses more money to spend and invest, which can increase production, create jobs, and boost economic growth, especially when unemployment is high.

d.

- Fixed Exchange Rate: In a fixed exchange rate system, the value of the cedi is tied to another currency, like the US dollar, which provides stability in trade. However, if the cedi is too high or low compared to other currencies, it can make exports more expensive or imports cheaper, affecting local businesses.

- Floating Exchange Rate: In a floating exchange rate system, the value of the cedi changes based on supply and demand in the global market. While this allows the cedi to adjust to the economy's health, it can also cause fluctuations, making imports more expensive and boosting exports when the cedi weakens.

- Managed Float: A managed float is a mix of both fixed and floating exchange rates, where the government can step in to adjust the currency if needed. This provides stability but still allows the market to control the exchange rate, with a weaker cedi causing inflation and a stronger cedi helping to lower import costs.

e. **Trade policies** are the rules a country follows to manage the goods and services it buys and sells with other countries. Ghana can use trade policies in several ways:

- Fixed Exchange Rate: A fixed exchange rate ties the value of the cedi to another currency, providing stability, but it can make exports more expensive or imports cheaper if the cedi's value is too high or low.

- Floating Exchange Rate: A floating exchange rate means the cedi's value changes based on supply and demand, causing price fluctuations, but making exports cheaper when the cedi weakens.

- Managed Float: A managed float allows the government to adjust the cedi's value when needed, offering some stability while letting the market control the rate.

a. National Income is the total amount of money a country earns from all the goods and services it produces within a certain period, usually a year. It includes the value of everything produced in the country, like food, clothes, cars, and services like teaching, health care, and transportation.

b. The Product or Output Approach is a way of calculating National Income by looking at the total value of the goods and services produced in a country. The idea is to measure what the country produces and add up the value of all these products to get the National Income. factors such as net factor income from abroad, depreciation, indirect taxes and subsidies are then adjusted to get the national income.

c. Calculation of national income

i. Gross Domestic product (GDP)

GDP = Manufacturing + Mining + Agriculture + Construction + Commerce + Utilities + Transport, storage and other services

GDP = Gh 1700 + Gh 860 + Gh 720 + Gh 420 + Gh 220 + Gh 320 + Gh 620

GDP = Gh 4,860

ii. Gross National Product (GNP)

GNP = GDP + Net factor income from abroad

GNP = Gh₵ 4,860 + Gh₵ 380

GNP = Gh₵5,240

iii. Net National Product (NNP)

NNP = GNP – Depreciation (D)

NNP = Gh₵5,240 - Gh₵ 200

NNP = Gh₵ 5040

iv. National Income (NI)

NI = NNP – Indirect Taxes (T) + Subsidies (S)

NI = Gh₵ 5040 – Gh₵ 180 + Gh₵ 220

NI = Gh₵ 5080

a. The Income Approach calculates National Income by adding up all the money people and businesses earn from producing goods and services in the country. The key sources of income included in the calculation are:

- Wages and Salaries: This is the money people earn from working for others. For example, a teacher's salary or a factory worker's wage.

- Profits: This is the money businesses make from selling goods and services after paying their costs. For example, if a cocoa farmer sells cocoa beans and makes money, that is counted as profit.

- Rent: This is the money earned from owning land or property. For example, if someone rents out a shop or a house, the money they earn from rent is included in National Income.

- Interest: This is the money earned from lending money or investing in businesses. For example, if you put money in a bank and the bank pays you interest, that is part of National Income.

- Taxes (less Subsidies): The government collects taxes from businesses and people, and these are part of the income in the economy. If the

government also gives subsidies (money to help certain businesses), those are subtracted from the total income.

b. The Expenditure Approach looks at how much money is spent on goods and services in the country. Instead, the income people earn, this approach focuses on how much people, businesses, and the government spend on things. The main components of expenditure approach include:

- Consumption (C): This is the spending by households (people) on goods and services. For example, if a family buys food and clothes, or pays for services like education or transportation, that is counted as consumption spending.

- Investment (I): This is the spending by businesses on things like new machinery, buildings, or factories to help them produce more goods and services. It also includes spending by people on new homes or apartments. For example, if a factory buys new machines to make more products, that is investment spending.

- Government Spending (G): This is the money the government spends on things like schools, hospitals, roads, and public services. For example, if the government builds a new road or hires more teachers, that is government spending.

- Net Exports (NX): This is the difference between what a country exports (sells to other countries) and what it imports (buys from other countries).

c. Calculation of the Gross Domestic Expenditure (GDE).

GDE = Personal consumption expenditure (C) + Gross domestic private investment (I) + Government consumption expenditure (G) + (Exports (X) – Import (M))

GDE = Gh₵ 40,660 + Gh₵ 15,500 + Gh₵ 10,780 + (Gh₵ 3,110 – Gh₵ 6,900)

GDE = Gh₵ 40,660 + Gh₵ 15,500 + Gh₵ 10,780 – Gh₵ 3,790

GDE = Gh₵ 63,150

d. Calculation of the Gross National Expenditure (GNE).

GNE = GDE + (Factor income received from abroad - Factor income paid abroad)

GNE = Gh₵ 63,150 + (Gh₵ 2740 - GhGh₵ 2120)

GNE = Gh₵ 63,150 + Gh₵ 620

GNE = Gh₵ 63770

e. Calculation of the Net National Expenditure (NNE)

NNE = GNE - Consumption of fixed capital (D)

NNE = Gh₵ 63770 – 3900

NNE = Gh₵ 59870

f. Calculate the Gross Domestic Income (GDI)

GDI = Compensation of employees + Rental income + Proprietor's (Self-employed) income + Corporate profits +Net interest

GDI = Gh₵ 76,709 + Gh₵ 4,500 + Gh₵ 4,960 + Gh₵ 7,400 + Gh₵ 8,970

GDI = Gh₵ 102,539

g. Calculation of the Net Domestic Income (NDI).

NDI = GDI - Consumption of fixed capital (D)

NDI = Gh₵ 102,539 – Gh₵ 3900

NDI = Gh₵ 98,639

h. Calculation of the Net National Income (NNI).

NNI = NDI + (income received from abroad - income paid abroad)

NNI = Gh₵ 98,639 + (Gh₵ 2,740 – Gh₵ 2,120)

NNI =Gh₵ 99259

i. Calculation of the national income (NI) using income approach.

NI = NNI + Indirect taxes – Subsidies

NI = Gh₵ 99259 + Gh₵ 5,000 – Gh₵ 3,900

NI = Gh₵ 100,359

a. Uses of national income

- Measuring Economic Growth: National income shows if a country's economy is growing or shrinking, with an increase in national income indicating more goods and services are being produced.

- Planning Investments: The government and businesses use national income data to decide where to invest money, such as in sectors like health or infrastructure, to boost economic growth.

- Assessing the Standard of Living: National income helps measure people's well-being, with higher per capita income usually meaning a better standard of living.

- Setting Economic Policies: The government uses the national income to create policies that can improve the economy, like increasing spending or creating jobs if the national income is low.

b. Importance of national income

- Identifying Economic Problems: Tracking national income helps the government spot economic issues, like falling production or income, so they can take quick action to solve them.

- Balancing Inflation and Unemployment: National income helps the government understand how inflation and unemployment are linked,

guiding them to adjust policies like interest rates or taxes to balance the economy.

- Promoting Sustainable Development: National income helps the government plan for long-term growth by focusing on investments that will sustain and improve the economy in the future, such as in education or renewable energy.

c. Using Ghana's national income to help improve social welfare programs.

- Improving Education: When national income increases, the government can spend more on building schools, improving teaching, and giving scholarships, which helps students get better education and future jobs.

- Providing Healthcare Services: A higher national income allows the government to build hospitals, provide medical supplies, and pay healthcare workers, leading to better health for the people.

- Building Better Infrastructure: National income helps the government improve roads, bridges, and transportation, making it easier for businesses to work and people to travel, which leads to more jobs and economic growth.

- Providing Social Security for the Elderly: With more national income, the government can create pension programs for elderly people, ensuring they have money to live on when they can no longer work.

- Supporting Low-Income Families: By using national income data, the government can identify poor areas and create programs like food aid or housing help to support families in need and reduce poverty.

Multiple Choice Questions

1. A

2. A

3. C

4. D

5. A

6. D

7. C

8. B

9. D

10. C

SECTION 9

a. The three main motives for holding money.

- Transaction Motive: Holding money to make everyday purchases and pay bills.
- Precautionary Motive: Holding money to cover unexpected expenses or emergencies.
- Speculative Motive: Holding money to take advantage of future opportunities, such as buying something when prices are lower.

b. How the precautionary motive helps individuals and businesses.

The **precautionary motive** helps individuals and businesses by allowing them to save money for unexpected events or emergencies. For example:

- **Individuals** might save money to pay for medical bills, car repairs, or emergencies that could come up at any time.
- **Businesses** might save money in case of sudden price increases, unexpected costs, or drops in sales, helping them stay financially stable during tough times.

c. What the speculative motive for holding money involves.

The speculative motive involves holding money to take advantage of future opportunities. People or businesses keep money to wait for the right moment to make a good investment, such as:

- Individuals might hold money until the price of land or stocks drops, so they can buy at a lower price.
- Businesses might save money to invest in new equipment or technology when prices are more favourable.

d. The transaction motive for holding money.

The **transaction motive** is about holding money to pay for everyday needs. For example, in my community:

- A person might keep money in their wallet to buy food from the market, pay for transportation, or cover school fees for their children.
- A business might hold money to pay for salaries, rent, and materials needed for daily operations, like a shop paying for stock to sell.

e. How businesses in Ghana use the precautionary motive.

Businesses in Ghana can use the **precautionary motive** by saving money to prepare for unexpected situations, like:

- If the price of goods suddenly increases or if the business faces a slow period with fewer sales, having extra money saved helps keep the business running smoothly.

- Businesses might save money to cover costs like emergency repairs, paying employees during tough times, or dealing with unexpected market changes.

a. Roles of financial institutions in an economy.
- Mobilising Savings: Financial institutions collect money from people who save and make it available to others who need loans.
- Providing Loans: They lend money to individuals, businesses, and governments to help them invest and grow.
- Facilitating Payments: They provide services like bank transfers, mobile money, and credit cards to help people and businesses make payments easily.

b. Five roles of financial institutions in an economy.
- Mobilising Savings: Financial institutions encourage people to save by offering interest on deposits. These savings are then used to provide loans.
- Providing Loans: They lend money to businesses, individuals, and the government for things like starting a business, buying a home, or building infrastructure.
- Facilitating Payments: Banks and other financial institutions allow people to send and receive money quickly and securely, whether through bank transfers or mobile money.
- Investment Services: They help people and businesses invest money in things like stocks, bonds, and mutual funds, allowing them to grow their wealth.
- Risk Management: Financial institutions help people and businesses manage financial risks by providing insurance and other products to protect against things like accidents, health issues, or business losses.

c. Financial institutions and their respective roles.

Financial Institution	Role
Commercial Banks	Provide loans, savings accounts, and payment services.
Insurance Companies	Offer insurance to protect against risks (e.g., health, property).
Microfinance Institutions	Provide small loans and savings products to people in rural areas or low-income households.
Investment Banks	Help businesses raise money by issuing stocks and bonds.
Pension Funds	Collect and manage money for people's retirement savings.

d. How financial institutions can help businesses in Ghana to grow.

- Providing Loans: They offer loans to businesses for things like buying equipment, expanding operations, or hiring staff.

- Offering Investment Advice: They help businesses invest wisely to increase their wealth, such as buying assets or expanding into new markets.

- Facilitating Payments: They provide payment services (e.g., mobile money, and bank transfers) that make it easier for businesses to pay for goods and services or receive payments from customers.

- Managing Risks: They offer insurance products that protect businesses from risks like fire, theft, or health issues that might affect workers.

a. Types of Taxation

- Direct Taxation

- Indirect Taxation

b. Examples of each type of taxation.

Direct Taxation

- Income Tax

- Property Tax

- Corporate Tax

Indirect Taxation

- Value-Added Tax (VAT)

- Excise Duty

- Customs Duty

c. Types of direct and indirect taxation in Ghana

Direct Taxation

- Income Tax: This is paid by people based on how much they earn. For example, if a person earns a salary in Ghana, they pay income tax on that amount.

- Property Tax: People pay this tax if they own land or property. For example, someone who owns a house in Accra must pay property tax based on the value of the house.

- Corporate Tax: This tax is paid by businesses on their profits. For example, a business in Ghana that makes a profit must pay corporate tax on that profit.

Indirect Taxation

- Value-Added Tax (VAT): This is a tax added to goods and services. For example, when you buy a drink or food in Ghana, VAT is included in the price.

- Excise Duty: This is a tax on specific goods, like alcohol or cigarettes. For example, if a company sells alcoholic drinks, they must pay excise duty on each bottle.

- Customs Duty: This tax is paid on goods brought into Ghana from other countries. For example, if a business imports cars into Ghana, they pay customs duty on each car.

d. Principles of Taxation

- Equity (Fairness): Taxes should be fair, with everyone paying according to their ability. For example, a wealthy business owner in Ghana should pay more in taxes than a small shop owner.

- Certainty: The amount of tax a person or business must pay should be clear and predictable. For example, if you earn GHS 1,000 a month, your income tax should be a known percentage of that amount.

- Convenience: Taxes should be easy to collect and pay. For example, mobile money payments in Ghana make it easy for people to pay taxes or bills quickly and without trouble.

- Efficiency: Taxes should not be too high or complicated, which could hurt the economy. For example, if the government charges very high taxes on local businesses, it might discourage people from starting new businesses.

e. Classifications of taxes

- Direct Taxes: Taxes paid directly by individuals or businesses to the government. For example, when a Ghanaian worker receives their salary, they pay income tax directly to the government.

- Indirect Taxes: Taxes that are added to the prices of goods and services, which consumers indirectly pay. For example, when you buy a product at a shop in Ghana, you pay Value-Added Tax (VAT), but the business pays it to the government.

4.

a. Advantages of taxation

- Provides Revenue for the Government: Taxes are the main source of money for the government to fund services like schools, hospitals, and roads.

- Helps Redistribute Wealth: Taxes help reduce inequality by collecting money from the rich and using it to help the poor (e.g., through social programs).

- Promotes Economic Growth: Taxes can be used to invest in important projects like infrastructure or education, which can help the economy grow.

- Regulates Consumption: Taxes on products like alcohol or tobacco can discourage unhealthy consumption and improve public health.

b. Disadvantages of taxation

- Discourages Investment: High taxes on businesses can make it difficult for them to grow or create jobs.

- Can Increase Prices: Taxes like VAT can make goods and services more expensive, which can hurt consumers.

- Can Be Unfair: Some people may feel that the tax system is not fair, especially if they have to pay high taxes but do not see improvements in public services.

c. Analysing advantages and disadvantages of taxation.

Advantages:

- Provides Revenue: Taxes fund important projects in Ghana, like building roads, hospitals, and schools.

- Redistributes Wealth: Taxes help the government support the poor, such as through social programs for vulnerable groups.

- Encourages Economic Development: Tax money can be used to improve infrastructure, making it easier for businesses to grow and create jobs.

- Regulates Consumption: Taxes on unhealthy goods like cigarettes can reduce smoking and improve public health in Ghana.

Disadvantages:

- Discourages Business Growth: If taxes are too high, small businesses in Ghana might struggle to expand and create jobs.

- Higher Prices: The VAT on products like food or fuel makes them more expensive for people to buy, especially in poor areas.

- Unfair Tax Burden: Some people in Ghana may feel that they pay too much tax compared to others, especially if they do not see the benefits (like good schools or health services).

Multiple choice

1. B
2. B
3. B
4. C
5. B
6. C
7. D
8. A
9. B
10. D

SECTION 10

a. The main challenges of farmers

- Unpredictable Rainfall: The weather changes often, which can harm his crops.
- Lack of Access to Affordable Fertilisers and Quality Seeds: He cannot afford the best materials for farming.
- Poor Road Networks: It is difficult to transport his crops to the market.
- Limited Access to Loans: He cannot get enough money to improve his farm or buy better equipment.

b. Without affordable fertilisers and good seeds, Kwabena's crops may grow poorly or yield less. This means his farm cannot produce enough to sell and make money, reducing his productivity.

c. Unpredictable rainfall can lead to either too little rain, which dries out the crops, or too much rain, which can flood the crops and destroy them. This makes farming risky and hard to plan.

d. Poor road networks make it hard to transport his crops to markets. If he cannot get his produce to buyers on time, it may spoil or he might not be able to sell it at a good price, reducing his income.

e. Ways the government can help farmers to benefit from agricultural programs.

- Improve Awareness: The government can organize programs to inform farmers like Kwabena about the available subsidies for fertilisers and irrigation systems.
- Better Accessibility: The government can improve road networks to make it easier for farmers to transport their goods to the market.

a. Three sectors of the economy

- Primary Sector (Agriculture)
- Secondary Sector (Manufacturing)
- Tertiary Sector (Services)

b. Activity of each sector in the economy

- Primary Sector: Growing crops like maize and cassava.
- Secondary Sector: Processing cassava into gari and cocoa into chocolate.
- Tertiary Sector: Trading goods in the market.

c. Importance of the three sectors in the economy

- Primary Sector (Agriculture): Provides food and raw materials for people and businesses.

- Secondary Sector (Manufacturing): Turns raw materials into finished products, adding value to goods.
- Tertiary Sector (Services): Facilitates trade and provides services like transportation, helping businesses run smoothly.

d. Challenges of the manufacturing sector in the economy

- Electricity Outages: Frequent power cuts affect the ability to operate machines and produce goods.
- Old Machines: Outdated equipment makes it harder to produce goods efficiently and at a high quality.

e. Solutions to improve the service sector

- Improve Road Infrastructure: Build better roads to make it easier for traders to transport goods.
- Reduce Transportation Costs: Provide subsidies or support for cheaper transportation methods to help traders.

f.

- Primary Sector (Agriculture) faces issues like poor weather conditions and lack of modern equipment.
- Secondary Sector (Manufacturing) struggles with electricity outages and old machinery.

a. Countries that Ghana exports goods to and imports from.

Exports

- United States
- China
- United Kingdom
- Netherlands

Imports

- China
- India
- United States
- United Kingdom

b. Economic impacts of international trade in Ghana

- Boosts the Economy: Exporting goods like cocoa and gold brings in foreign exchange, which helps Ghana's economy to grow.
- Job Creation: International trade creates jobs in sectors like agriculture and manufacturing. For example, cocoa farming in Ghana supports thousands of workers.

- Access to Better Goods: Importing goods like technology and machinery improves the quality of life and business operations in Ghana.

c. Challenges of international trade using real-world examples.

- Unpredictable Exchange Rates: The value of the cedi changes, making imports more expensive for Ghana. For example, if the cedi weakens against the dollar, imported goods like electronics become more costly.

- High Shipping Costs: Shipping goods from Ghana to other countries or importing goods can be very expensive. This increases the cost of products and reduces profits for businesses.

a. Domestic Trade is the buying and selling of goods and services within the same country. For example, Kofi sells his furniture to local stores in Ghana like in Accra, Kumasi, and Takoradi.

b. International Trade is the exchange of goods and services between different countries. Kofi sells his furniture to stores in the United States, which is an example of international trade.

c. Kofi sells his furniture in local stores in Accra, Kumasi, and Takoradi in Ghana.

d. International Trade will have higher transportation costs because Kofi has to ship his furniture to the United States, which involves longer distances, customs, and shipping fees. Domestic trade, on the other hand, is within Ghana, so transportation costs are lower.

e. In international trade, Kofi must deal with **currency differences**. If the value of the cedi falls compared to the U.S. dollar, it means Kofi gets less cedi for the same amount of dollars from his sales in the U.S., affecting his profits.

f. Comparing and contrasting the legal risks in domestic trade versus international trade

- Domestic Trade: Kofi faces local laws and regulations, such as taxes and business licenses. These laws are easier to understand and follow.

- International Trade: Kofi faces more complex laws from both Ghana and the U.S., including import/export restrictions, tariffs, and currency exchange rules, making it riskier and more complicated.

g. Kofi should focus on **international trade**. By exporting furniture to the U.S., he can reach more customers, increase sales, and grow his business beyond Ghana's borders. International trade opens up more opportunities for larger profits.

Multiple Choice

1. C
2. B
3. C
4. A
5. B
6. B
7. B
8. A
9. B
10. B
11. C
12. B

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GLOSSARY

Abound: To exist in large amounts or be plentiful, like opportunities or resources.

Algebra: A branch of mathematics that uses letters and symbols to represent numbers and relationships.

Armyworm: A pest that destroys crops, especially maize, and can cause significant agricultural losses.

Automobile: A vehicle such as a car or truck used for transportation.

Average: Total value divided by quantity (e.g., average cost, average revenue).

Bodily Shift: A complete movement of the whole supply or demand curve either to the left or right.

Capital: Money, resources, or assets used to start or grow a business.

Complements: They are goods that are used or consumed together.

Constraints: Limitations or restrictions that affect economic activities or decisions.

Contingencies: Backup plans or actions prepared for unexpected events in the economy or business.

Contractionary: Policies or actions that aim to slow down economic growth, such as raising taxes or cutting spending.

Currency Fluctuation: Changes in the value of a currency relative to others, which can affect trade and prices.

Currency: The money used in a country for trade and transactions.

Customer Service: Assistance and support provided by a business to its customers before, during, and after a purchase.

Demand Schedule: A table that shows the quantity of a product that consumers are willing to buy at various prices over a certain period.

Differentiated Products: Goods or services that are similar but have unique features, such as brand or quality.

Diminishing: Decreasing intensity or effect (e.g., diminishing marginal utility).

Disincentive: A discouragement or demotivation of consumers.

Economic Tools: These are the methods and techniques that economists, policymakers, businesses, and researchers use to study economic problems and data.

Economic Welfare: The overall well-being or standard of living of people in an economy.

Economies of Scale: The cost advantage gained when a firm produces goods in large quantities, lowering the cost per unit.

Embodies: To represent or include an idea or quality, such as value in a product or service.

Equilibrium: A state of balance between two items, where one is equal to the other.

Equilibrium: A state where demand and supply are equal, and there is no shortage or surplus.

Expansionary: Policies or actions that aim to increase economic growth, such as lowering taxes or increasing spending.

Floating: A system where the value of a currency is determined by supply and demand in the foreign exchange market.

Forestry: The management and use of forests for products like timber and conservation.

Government Intervention: Actions taken by the government to influence the economy, such as setting prices or providing subsidies.

Gradient: The rate of change or slope of a line, showing how one variable changes in relation to another.

Groceries: Everyday items like food and household supplies bought for regular use.

Gross Domestic Product (GDP) measures the total value of all goods and services produced within a country over a specific period, usually a year.

Hospitality: An industry that provides services like lodging, food, and tourism to guests.

Hypothetical: Imaginary or an assumed situation (not real).

Hypothetical: Something imagined or assumed for the sake of discussion or analysis is not real.

Incentive: An encouragement or motivation to consumers.

Indicator: A sign or measure used to assess the condition or performance of the economy.

Inferior goods: These are goods that consumers buy less when their income increases but rather buy more when their income falls.

Inflationary Effect: The impact of rising prices on the economy, reducing the purchasing power of money.

Integrated Pest Management: A method that uses a combination of techniques to control pests while minimizing harm to the environment.

Land Tenure: The system of rights and rules that govern how land is owned and used.

Liquidity: The ability to quickly convert assets into cash without losing value.

Local Market: A marketplace where goods and services are bought and sold within a specific community or area.

Macroeconomic Variables: Factors that show the overall performance of an economy, like inflation, unemployment, and GDP.

Manual Labour: Work done by hand or using physical effort rather than machines.

Marginal Cost: The additional cost of producing one more unit of a good or service.

Marginal Revenue: The extra income earned from selling one more unit of a good or service.

Marginal: Additional or incremental change (e.g., marginal cost, marginal benefit).

Market Control: The ability of a firm or group of firms to influence prices and production in a market.

Market Demand: The total amount of a product or service that all consumers in a market are willing to buy at different prices.

Market Timings: Choosing the best moment to buy or sell goods, stocks, or currencies for maximum benefit.

Mechanisation: The use of machines to do work that was previously done by humans or animals.

Motive: A reason or goal that drives someone to take economic action, like earning profit or saving money.

National Output: The total value of goods and services produced by a country in a given period, often measured as GDP.

Normal goods: These are goods that consumers buy more when their income increases and buy less when their income falls.

Oligopoly: A market structure where a few large firms dominate.

Orientation Training: A program that introduces new employees to a job or organisation's rules and operations.

Perfect Competitive Market: A market structure where numerous firms produce homogeneous products, no single firm has market control, and entry/exit barriers do not exist.

Policymakers: Individuals or groups that create and implement laws, regulations, or decisions.

Preference: Individual liking or choice for a particular good or service.

Production: The process of creating goods and services to meet the demands of consumers.

Productivity: A measure of the efficiency of production, calculated as the output per unit of input, typically labour or capital.

Propensity: A natural tendency or likelihood to do something, such as spending or saving.

Purchasing Power: The ability of money to buy goods and services.

Questionnaire: A set of written questions used to collect information from people for research or surveys.

Rational: Making sensible decisions based on available information.

Reserves: Savings or funds set aside by businesses or governments for future use or emergencies.

Revenue: The total amount of money earned from sales of goods or services.

Satisfaction: Utility or pleasure derived from consuming goods/services.

Shift: A change in position usually refers to the movement of a supply or demand curve due to factors other than price.

Standard of Living: The level of wealth, comfort, and basic needs available to people in a country.

Standardisation of Product: Making products uniform in quality and design to ensure consistency.

Stocks: Shares of ownership in a company that investors can buy or sell.

Subsidy: This refers to the support in terms of money and other incentives that the government grants to businesses within the country to reduce their cost of production.

Substitutes: These are goods that serve similar purposes and the consumer can buy one in place of the other.

Supermarket: A large retail store that sells a wide variety of food and household products, offering consumers convenience and one-stop shopping.

Supply: The quantity of a good or service that producers are willing and able to sell at different prices.

Symbolical: Represented by symbols or signs instead of words or numbers.

Tax Evasion: The illegal act of avoiding paying taxes by hiding income or not reporting it fully.

Third-Party: A person or group that is not directly involved in a transaction but may be affected by it.

Uncertainty: A situation where the future outcome is unknown or unpredictable.

Unforeseen Circumstance: An unexpected event that can affect economic decisions or outcomes.

Utility: The satisfaction or benefit gained from consuming a good or service.

Variability: The degree to which something changes or differs over time.

Variables: Symbols or values that can change or be adjusted in a mathematical equation or situation.

Volatility: The degree of rapid and unpredictable changes, often in prices or markets.

Woefully Inadequate: Extremely insufficient or far below the needed level.

Words: Units of language that carry meaning and are used to communicate.

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