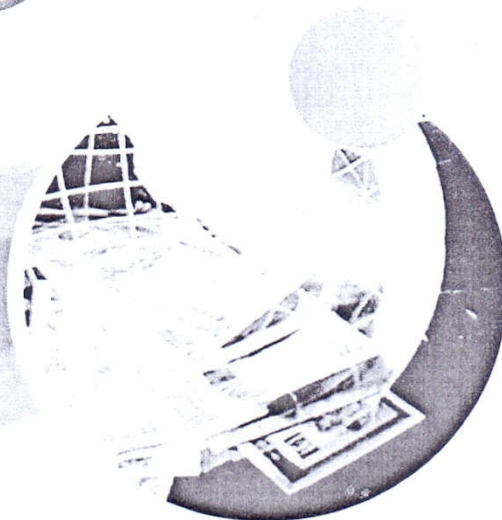




SOCIAL SCIENCES FOR BEGINNERS

VOL. I

Geography and Economics

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**SOCIAL SCIENCES FOR BEGINNERS
VOLUME 1**

GEOGRAPHY AND ECONOMICS

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TABLE OF CONTENTS

CHAPTERS	Page
Forward	1
1. Definition, Scope and Branches of Geography	2- 17
2. The Composition and Structure of the Earth	18-29
3. Ocean Circulation And Global Ocean Currents	30-45
4. Introduction to Earth's Energy and Mass Budget	46-56
5. Ocean Circulation And Its Impact In Our Environment	57-72
6. An Overview of Field Techniques in Human Geography	73-76
7. Global Environmental Issues and Climate	77-87
8. The Cycling Of Matters And Energy In Ecosystems	88-103
9. First Order Relief Features Of The Earth	104-121
10. Soil And Soil Processes	122-147
11. Man-Environment Relationships and Sustainability of the Earth System.	148-157
12. Optimizing the Potentials of Sack Farming in Solving the Problems of Land Accessibility, Security and Household Food Insecurity in Nigeria	158-164
13. World Population Distribution and Patterns	165-172
14. Patterns and Factors of Economic Activities in Africa	173-183
15. Spatial Interaction Models	184-194
16. Link Between Population And Energy Consumption	195-205
17. Waste Management In Nigeria: Issues, Perspective and Impact on Development	206-220
Economics	221
18. Nature And Scope Of Economics	222-227
19. Price Theory and its Applications	228-237
20. Theory Of Cost	238-243
21. Theory Of Production	244-254
22. Industrialisation	255- 259
23. National Income Accounting	260-270
24. Elementary Models of income and Employment	271-282
25. Analysis of Money and Banking	283-293
26. Introductory Concepts in International Trade Theory	294-302
27. Taxation And Public Expenditure	303-309

CHAPTER 19

PRICE THEORY AND ITS APPLICATIONS

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Introduction

One of the most remarkable systems for allocating scarce resources among alternative uses is the system of markets and prices. This system is remarkable because of the ease with which it coordinates the many decisions required to ensure that the right kinds of goods and services in the appropriate quantities get to the right places and into the right hands at the right time. It performs this coordinating function for millions of goods and services involving billions of decisions day in and day out. It should be noted that, all of this is accomplished without the aid of any central planning agency. This function involves solving the central economic questions of what to produce? How to produce? And for whom to produce? In modern economy, solving these three core economic problems relies on the market system and prices. Therefore, understanding the function of market system and price determination is imperative to the knowledge of principle of economics. The knowledge on the behavior of demand and supply is necessary to understanding the workings of the market system. Therefore, this chapter aims at introducing students to the concept of demand and supply, theory of price determination, static analysis of changes in demand and supply, and the effects of regulatory policies.

At the end of the chapter, students should be able to explain:

- (i) the concepts of price theory, demand and supply;
- (ii) how equilibrium price is established;
- (iii) the effects of changes in demand and supply; and
- (iv) the effects of price regulations.

The Concept of Price Theory

Price theory is concerned with the economic behavior of individual consumers, producers, and resource owners. Price theory is generally about the study of the functions of prices in market economy. The functions of prices include, first, prices determine what goods are to be produced and in what quantities; second, they determine how the goods are to be produced; third, they determine who will get the goods. It can therefore be said that prices serve as signal to buyers, signal to producers, and prices coordinate production activities. Prof. Leftwich defined price theory as "flow of goods and services from business firms to consumers, the composition of the flow, and the evaluation or pricing of the component parts of the flow. It also concerns with the flow of productive resources (or their services) from resource owners to business firms, with their evaluation, and with their allocation among alternative uses". However, this theory also has its limitations, in that; the theory simply provides a theoretical analysis of the working of the individual parts of the economy. But the operation of the individual parts does not give a true picture of the working of the economy. Every economic unit is so complex and requires much more description and analysis that price analysis is unable to do justice. Price theory may not give a description of the real world since it is based on limited data and unrealistic assumptions. But by concentrating on the most important data, we can get to an insight into the working of the economy.

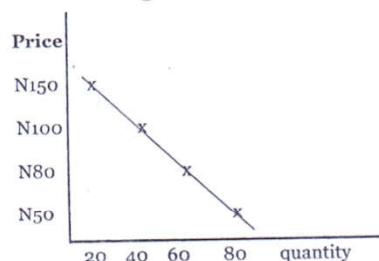
The Concept of Demand

The term demand has a very definite meaning to an economist. The demand for a particular good or service expresses the willingness and ability of a consumer to buy such good or service at a given time. The emphasis given to the 'willingness and ability' to buy is important. Willingness only reflects the desire of a consumer. While willingness back up with ability to pay makes it a demand. Demand for a good or service expresses willingness and ability to pay, and willingness to forego other goods and services in order to acquire it. The notion of opportunity cost is central to the concept of demand. Demand for a good, therefore, cannot be viewed as independent of the demand for other goods; it reflects people's relative preference for a product. For example, there are many things a student want and desire. But some she cannot afford and others would necessitate she give up some things in order to be able to pay for her desire good. Ceteris paribus, that is holding every other thing constant, the amount of goods and services people would be willing and able to buy depends on prices. If the price of a particular commodity rise, the amount of such commodity people would be willing to buy will fall. On the other, if the price decline, people would be willing to buy more quantity of such commodity. Therefore, all other things being equal, the higher the price of a commodity, the lower the quantity demanded. And the lower the price, the higher the quantity demanded. This relationship between price of a commodity and the quantity demanded of that commodity is called demand schedule. The graphically representation of the demand schedule is called demand curve. A hypothetical example of demand schedule and demand curve are given in Table 1 and Figure 1 below.

Table 1: Demand Schedule

Price	Quantity Demanded
N 150	20
N100	40
N80	60
N50	80

Figure 1: Demand Curve



Factors that Influence Demand

What determines the quantity of a product people are willing and able to purchase during a given time period – say, a month, could be attributed to many factors. Suppose the product in question is commodity X. The demand for this commodity – that is the number of commodity X people are willing and able to buy per month – will be determined by the price of commodity X, the prices of other commodities, people's income and wealth, and family sizes among other things. *Therefore, the factors which determine the level of demand for any commodity are the following:*

- Price of the commodity.** The relationship between price of a commodity and the quantity demand of the commodity is inverse, such that the higher the price, the lower the quantity demanded and the lower the price, the higher the quantity demanded.
- Price of other commodities.** There are two types of commodities in this context.

- (i) Substitutes – if a rise (or fall) in the price of one commodity leads to an increase (or decline) in the demand for another commodity, the two commodities are said to be substitutes.
- (ii) Complementary commodities – where the demand for two commodities is linked to each other, such as car and petrol, they are said to be complementary goods. If the price of cars rises and they become expensive, the demand for them will fall and so the demand for petrol will fall also.
- (c) **Income of consumer.** A rise in the consumer's income raises the demand for a commodity and a fall in his income reduces the demand for it.
- (d) **Tastes.** When there is a change in the taste of consumers in favour of a commodity, say due to fashion, its demand will rise. On the other hand, change in tastes against a commodity leads to a fall in its demand, other factors affecting demand remaining unchanged.

The Concept of Supply

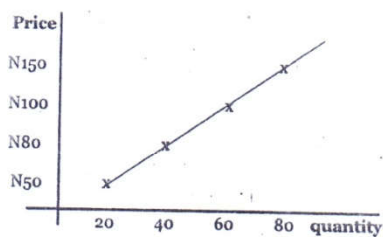
The concept of supply is analogous to that of demand, but refers to the seller's side of the market rather than the buyer's side. Like demand, supply has a very definite meaning to an economist. The supply of a particular good or service expresses the willingness and ability of sellers to sell. Just like demand, supply of a good cannot be determined independently of the supply of other goods. A willingness to use scarce resources to supply one product precludes the use of same resources to produce something else (at the same time). The willingness to sell a resource for use in some particular productive activity implies a willingness to forego alternative uses of that resource. The notion of opportunity cost is central to the concept of supply. And finally, supply, like demand, must be given an explicit time dimension. The amount that can be produced in a week using given techniques is certainly different from the amount that can be produced in a year. Thus, supply is expressed as so much per unit of time.

The higher the price of a commodity, the more producers would be willing to supply such commodity, the lower the price, the fewer they would be willing to supply. Thus, *Ceteris paribus*, the higher the price of a commodity, the higher the quantity supplied, and the lower the price, the lower the quantity supplied. This defines a positive relationship between quantity supplied and price of a given commodity. The relationship between the quantity supplied and the price of a given commodity is called supply schedule. Graphical representation of the supply schedule is called supply curve. Supply schedule and supply curve are illustrated in Table 2 and Figure 2 respectively.

Table 2: Supply Schedule

Price	Quantity Demanded
N 150	80
N100	60
N80	40
N50	20

Figure 2: Supply Curve



Factors that Influence Supply

How much producers are willing and able to sell during some period – say, a month, will depend on many things such as the price of the product, the prices of other products, the prices of production inputs, and the technology used in production etc.

Therefore, the following are factors that cause, affect or influence the supply of a commodity.

- (a) **Price of the commodity.** The higher the price of a commodity, the larger will be the quantity supplied, and vice versa.
- (b) **Price of other commodities.** A change in the price of another commodity also affects the supply of a commodity. For instance, if the price of good A rises, the producer of good B may produce less of good B and switch over to the production of good A in order to sell more of it.
- (c) **Prices of factor used in production.** If the price of any one factor of production (such as labour or capital) used in the production of a commodity increases, its cost of production will increase. As a result, its output will fall and the supply will be reduced.
- (d) **State of technology.** If new and improved methods of production are used, then supply tends to increase.
- (e) **Government policy.** Government policy, particularly on taxation, can affect the condition of supply. For instance, a tax on poultry farming equipment or poultry products will cause a decrease – while a subsidy given to poultry farmers, in terms of free importation of equipment and poultry feed, will effect an increase – in the supply of eggs.

Price determination

In a competitive market the action of single seller or buyer does not determine the price. In this market, there are so many sellers and buyers such that an individual seller or buyer is insignificant. Individual seller or buyer sees price as given, that is, determine outside his/her action. Though market price is independent of individual's action, it is determined by the actions of all agents (sellers and buyers) in the market. It is the collective action of all sellers and buyers that determine market price. The summation of all quantity of a particular commodity supplied by individual seller gives market supply. Similarly, addition of all individual demand yield market demand. The interaction of the market demand and supply determines price. Market price is established at the point of equilibrium.

Equilibrium point is the point of intersection between market demand and supply. That is, the point where the demand curve intersects the supply curve. This happens when the amount of good willingly supplied by sellers equals the amount willingly demanded by consumers. At this point there is no surplus or excess supplied and there is also no shortage. In other words, all consumers who are willing and capable of buying would have bought all the quantity the sellers are willing and able to supply. Looking at Figure 3, the equilibrium occurs at point E where demand and supply intersect, the equilibrium price and quantity are P_e and Q_e respectively. Table 3 presents numerical hypothetical example. Suppose the Table presents observation on demand and supply of eggroll at five different periods. It is clear that quantity demanded decreases as price increases, while quantity supplied increases as price increases. However, quantity demanded equals quantity supplied when the price is N40 per unit. This is the equilibrium point. At this point the equilibrium price is N40 and the equilibrium quantity is 120.

When the price is lower than the equilibrium price, quantity demanded is higher than quantity supplied, meaning there is shortage in the market. For example, when the price is N30, 150 quantity are demanded by consumers but only 70 is supplied by sellers. There is shortage of 80 quantity. On the other hand, when the price is above the equilibrium price, there will be surplus in the market. For example, when the price of eggroll is N50 per unit, 100 quantity is demanded, while 160 quantity is supplied. *Quantity supplied is excess of quantity demanded by 60.*

Figure 3: Market Equilibrium

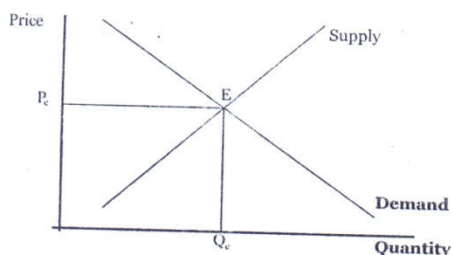


Table 3: Price, Quantity Demanded and Supplied

Observation	Price	Quantity Demanded	Quantity Supplied
1	20	200	30
2	30	150	70
3	40	120	120
4	50	100	160
5	60	90	180

Change in Demand

Change in demand is the shift in demand curve due to the influence of factors other than price of the commodity. Change in demand occurs when one of the factors mentioned above except price of the commodity change. The demand curve can shift either outward to the right or inward to the left. Demand curve shift outward if there is increase in demand due changes in any of the factors that affect demand while price of the commodity in question remains constant. For example, if there is increase in income of consumers, they would tend to buy more of goods and services, hence, the demand curve would shift outward, and vice-versa. On the other hand, change in quantity demanded is the movement along the same demand curve due to changes in price of the commodity holding all other factors constant. Figure 4 depicts the effect of outward shift in demand curve. Suppose there is increase in income of consumers, demand would increase leading to the shift in demand curve from D1 to D2. When this happens, the number of goods consumers are willing to buy at the equilibrium price will jump up to Qd creating excess demand. As a result of the excess demand, price will rise to P**. The rise in price will encourage businesses to produce and sell more, hence quantity supplied will increase along the supply curve. As supply is increasing the price will

be falling till a new equilibrium is established at point E^* and new equilibrium price is set at higher level P^* . If there is rise in demand (outward shift of demand curve), both equilibrium price and quantity will rise. On the other hand, Figure 5 displays the effect of decrease in demand (inward shift of demand curve). Suppose there is decrease in income of consumers, the amount of goods and services consumers would be willing and able to buy will decrease, thus, the demand curve will shift inward to the left. This is illustrated by the shift in the demand curve from D_1 to D_2 in Figure 5. As the demand curve shift inward, there will be excess supply at the equilibrium price, the excess supply would impose downward pressure on the price, hence the price will decline from the equilibrium price P_e to P^{**} . This decline in price will dissuade sellers, hence quantity supplied will fall along the supply curve till a new equilibrium is established at point E^* and new equilibrium price is set at P^* . If there is decrease in demand (inward shift of demand curve), both equilibrium price and quantity will fall.

Figure 4: Increase in Demand

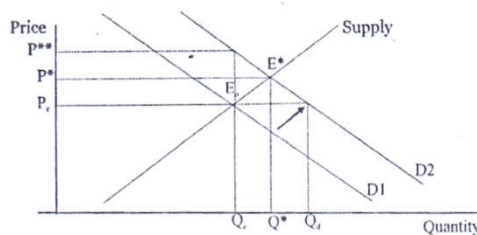
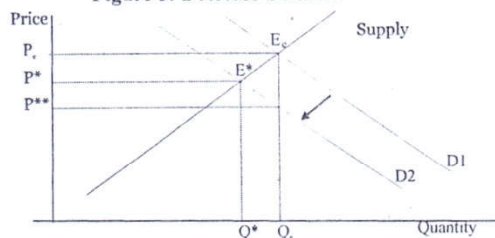


Figure 5: Decrease Demand



Change in Demand in Special Cases

The effect of change in demand in two special cases are displayed in Figures 6 and 7. Figure 6 depicts a special case where the market supply curve is completely horizontal. This occurs when the sellers are willing to supply any amount of the commodity at a constant price. In such situation, the equilibrium price is determined by the supply condition, while the equilibrium quantity is determined by the demand curve. Thus, a shift in demand curve in this case will only affect the quantity, while the price remains the same. That is, increase or decrease in demand will not affect the equilibrium price, rather it affects the equilibrium quantity. Figure 7 on the other hand shows another special case, where the supply curve is perfectly vertical. In this case the amount supplied is fixed irrespective of the price. This is a situation where the supply does not respond to changes in price. In real world, adjustment in

production of certain goods require long time, duration thus, supply of such goods would change due to changes in price. Here the equilibrium quantity is determined by supply condition, while the equilibrium price is determined by demand. If there is shift in demand for any reason, only the equilibrium price will be affected but the equilibrium quantity remain the same.

Figure 6: Change in Demand when the Supply Curve is Horizontal Vertical

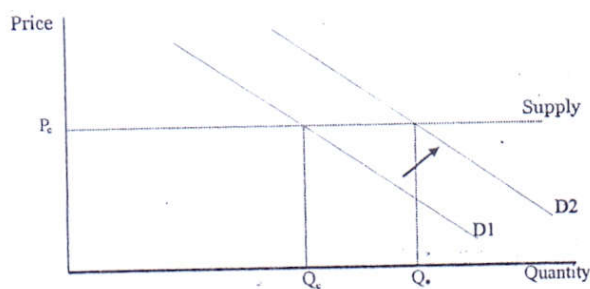
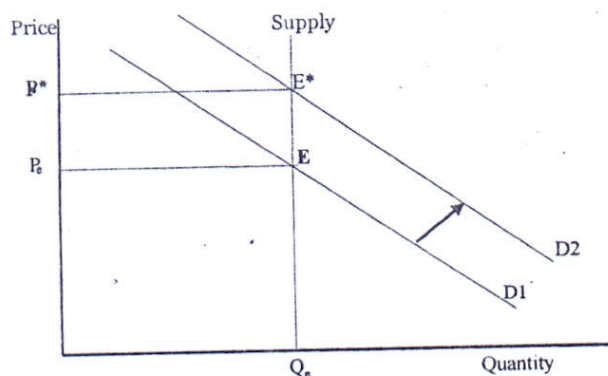


Figure 7: Change in Demand when the Supply Curve is Vertical



Change in Supply

Change in supply is the shift in supply curve as a result of change in any of the factors that influence supply except the price of the commodity in question. While change in quantity supplied is the movement along the same supply curve due to changes in price of the commodity. **Figure 8** shows the effect of increase in supply. Suppose there is change in one of the factors that influence production such as advancement in technology, producers will be able to produce more, hence, there will be increase in supply. The increase in supply could lead to shift in supply curve from $S1$ to $S2$. This shift in supply curve will create surplus, and this will have downward pressure on price. Hence, the price will decline to P^{**} , the fall in price will in turn would let quantity demanded to increase along the demand curve. As quantity demanded increase, price will equally be rising till a new equilibrium is established at point E^* . New equilibrium price and quantity would be established at P^* and Q^* respectively. Thus, if supply increases (outward shift in supply curve) equilibrium price will fall, while equilibrium quantity will rise. **Figure 9** on the other hand shows the effect of decrease in supply due to change in one of the factors that affect supply apart from price of the commodity in question. For example, suppose there is drought which negatively affects

the production of maize. The supply of maize in the market will decrease due the bad weather condition. Decrease in supply will make the supply curve to shift backward to the left from S_1 to S_2 as shown in Figure 9. As a result of the decrease, there will be shortage of such commodity in the market. The shortage will push the price upward from original price P_e to P^{**} . The jump in price from P_e to P^{**} would lead to decrease in quantity demanded. Therefore, quantity demanded will fall along the demand curve, which in turn would have downward pressure on prices until new equilibrium is established at point E^* . The new equilibrium price and quantity would then be P^* and Q^* respectively. If supply decreases, price will rise, while quantity will fall.

Figure 8: Increase in Demand

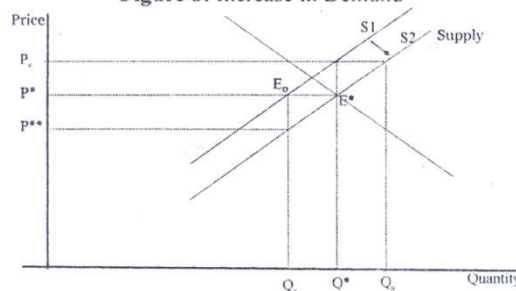
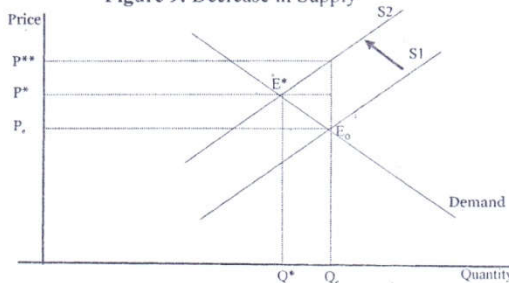


Figure 9: Decrease in Supply



Price Regulation

Two examples of price regulation are examined in this chapter. Figure 10 presents the case of price floor, while Figure 11 presents the case of price ceiling. Price floor is a situation where government or its agency fixed price of a commodity above the equilibrium price. Usually this is done to protect the producers. For example, most agricultural products are under price by the market, hence, government can decide to fixed the price above the market price so as to encourage farmers to continue production of such product. This is common in the United States (US) of America. However, this kind of price control has some implications in the market. If price of a commodity is fixed above the equilibrium price such as P in figure 10 the amount of this commodity sellers will be willing to sell will exceed the equilibrium quantity. On the other hand, the amount consumers are willing to buy will fall below the

equilibrium quantity. Hence, there will be excess supply in the market. Since the price is regulated, the price will not fall due to the excess supply. Hence, some sellers will be willing to sell below the regulated price; therefore, leading to emergence of black market. **Figure 11** displays the case of price ceiling. Price ceiling is a situation where government or its agency fixed price of a commodity below the equilibrium price. A good example in Nigeria is the price of Premium Motor Spirits (PMS) commonly known as petrol. Most often this is done to protect consumers. The implication of this in the market is that, the quantity people are willing to buy will rise beyond the equilibrium quantity, while the quantity sellers are willing to sell will fall below the equilibrium quantity. Hence, excess demand is created in the market. Since the excess demand cannot push the price above the regulated price, some consumers would be willing to buy such commodity above the regulated price, thus leading to emergence of black market.

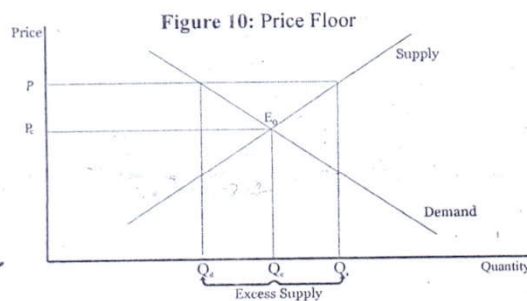
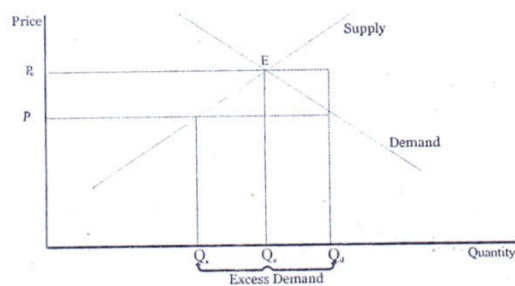


Figure 11: Price Ceiling



For Further Readings

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