

Fisheries Economics

Fisheries play an important role in our national economy. It provides about Rs. 35,650 crores (2007–08) to the national income (GDP) (according to Central Statistical Organization). Our present annual fish production through capture and culture fisheries is 7.58 million tonnes (FAO, 2008), and by providing a cheap source of protein it helps in ensuring nutritional security of our people. Further, through the export of fish and fishery products, our country has earned foreign exchange worth Rs. 12,825 crores annually (2011, source: MPEDA). Above all, the fisheries sector is known to provide direct and indirect employment for about 14.66 million people (FAO).

Knowledge about the livelihood and welfare development of the fisherfolk, who are the stakeholders of fisheries, is also equally important as the socioeconomic status of the fishing community is an integral component of fisheries economics and management.

Professional fisheries graduates need to have adequate understanding of basic concepts in economics for serving the needs of fisherfolk. In this connection, this manual is being brought out as it explains fisheries economics in a comprehensive way, in an easy to read style. I am sure that the students of Fisheries Science would find this publication useful and interesting.

Law of demand

The law of demand reveals the relationship between the price of a commodity and the quantity demanded of it in a market. The law of demand states that *other things being equal, the quantity demanded of good increases with a fall in price and vice versa*. Thus, quantity demanded varies inversely with price.

Elasticity of demand

The elasticity of demand is defined as the rate of change in quantity demanded for a given change in price. It is primarily related to extension or contraction of demand for a fall or rise in price. Hence, this is called price elasticity of demand. But there are other factors which influence elasticity of demand and accordingly we have three types of elasticity of demand.

- a) price elasticity of demand
- b) income elasticity of demand and
- c) cross elasticity of demand

Price elasticity of demand

Price elasticity of demand is the ratio of proportionate change in the quantity demanded of a given commodity to a given proportionate change in its price.

The term 'E' gives the coefficient of price elasticity of demand. If E is greater than one, the demand is said to be elastic. If E is less than one, the demand is said to be inelastic and if E is equal to one, the demand is unitary.

The terms elastic and inelastic are only relative terms. Based on the elasticity we have five types of demand.

Law of supply

The law of supply states that other things remaining equal, as the price of a commodity increases, its supply also tends to increase. At higher prices, more sellers are interested to produce more and each existing seller wants to sell more. When price declines, the opposite holds good.

Markets and prices

We will examine how markets determine the price of goods and the quantity sold and consumed. A market is a set of arrangements for the exchange of a good or a service.

A **barter system** is a market system in which goods or services are traded directly for other goods or services. If you agree to repair your neighbor's computer in return for his or her assistance in painting your house, you have engaged in a barter transaction. While a barter system may be able to function effectively in a simple economy in which a limited variety of goods are produced, it cannot function well in a complex economy that produces an extensive collection of goods and services. The primary problem associated with a barter system is that any trade requires a **double coincidence of wants**. This means that trade can only take place if each person wants what the other person is willing to trade and is willing to give up what the other

person wants. For this reason, throughout recorded history virtually all societies have used some form of money to facilitate trade. In a monetary economy, individuals trade goods or services for money and then use this money to buy the goods or services that they wish to acquire. Since money can be traded for any good or service, the use of money eliminates the need for a double coincidence of wants and lowers the transaction **costs** associated with trade.

Relative and nominal prices

The opportunity cost of acquiring a good or a service under either a barter or a monetary economy may be measured by the **relative price** of the commodity. The relative price of a commodity is a measure of how expensive a good is in terms of units of some other good or service. Under a barter system, the relative price is nothing more than the trading ratio between any two goods or services. For example, if one laser printer is traded for 2 ink-jet printers, the relative price of the laser printer is two ink-jet printers. Alternatively, the relative price of an inkjet printer is one-half of a laser printer in this case. In a monetary economy, relative prices can also be easily computed using the ratio of the prices of the commodities. If, for example, a soccer ball **costs** Rs.20 and a portable CD player **costs** Rs.60, the relative price of a portable CD player is 3 soccer balls (and the relative price of a soccer ball is 1/3 of a CD player). Economists agree that individuals respond to changes in relative prices since these prices reflect the opportunity cost of acquiring a good or service.

In a market economy, the price of a good or service is determined through the interaction of **demand** and **supply**. To understand how market price is determined, it is important to know the determinants of both **demand** and **supply**.

Market coordination

Production in modern economies is an extremely complex activity. Consider the computer that you are currently using. It consists of components and raw materials that were probably made in thousands of firms located in dozens of countries. Somehow, the glass, plastic, metal, silica, and other raw materials were all combined into the monitor, computer chips, mother board, and other components that form this computer. It is interesting to note that the computer you are using contains dramatically more computing power than the mainframe computers of 20 years or so ago. How did all of these raw materials get converted into this computer? Well, it all happened through market processes. All but the most primitive economies rely on markets to

coordinate many productive decisions (yes, this was even true in the former Soviet Union -- it has been estimated that 50% or more of all output was sold in the unofficial underground market economy).

Markets and the "three fundamental questions"

All economies, no matter what their form of economic organization, must address what are known as the "three fundamental questions:"

- What?
- How?
- For Whom?

Let's examine each of these questions.

What?

The first question can be rephrased as: "What mix of goods and services will be produced?" In a market economy, the interaction of self-interested buyers and sellers determines the mix of goods and services that are produced.

Adam Smith, writing in the *Wealth of Nations* argued that competition among self-interested producers results in an outcome that benefits all of society.

Two quotes from Smith help to illustrate this argument:

It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their self-interest.

How?

The second fundamental question may be more completely stated as: "How is output produced?" This question involves the determination of the mix of resources that are to be used to produce output. In a market economy, profit-maximizing producers will be expected to select a mix of resources that result in the lowest possible level of cost (holding the quantity and quality of output constant). New production techniques will be adopted only if they reduce production costs. Sellers of resources will supply them to those activities in which they are most highly valued. Once again, Smith's "invisible hand of the market" guides resources into their most valued uses.

For whom?

This third fundamental question deals with the issue of "who gets what?" In a market economy, this is determined by the interaction of buyers and sellers in

both output and resource markets. The distribution of income is ultimately determined by the wages, interest payments, rents, and profits that are determined in resource markets. Those with more highly valued land, labor, capital, and entrepreneurial ability receive higher incomes. Given this distribution of income, individuals make their own decisions concerning how much of each good to buy in output markets.

The three fundamental questions and government

Of course, in any real-world economy, markets do not make all of these decisions. In all societies, governments influence what will be produced, how output will be produced, and who receives this output. Government spending, health and safety regulations, minimum wage laws, child labor laws, environmental regulations, tax systems, and welfare programs all have a significant effect on any society's answers to these questions. We'll examine many of these topics in the next chapter. For now, we'll focus on a simple market economy. In this simple economy, there are three participants in the private sector: households, firms, and foreign countries.

Household

A household, as defined by the Census Bureau, consists of one or more individuals that share living quarters.

Types of firms

There are three possible types of firms:

- sole proprietorship,
- partnership, and
- corporation.

A **sole proprietorship** is a firm that has a single owner. The main advantage of this form of ownership is that it provides the owner with autonomy (the ability to be his or her own boss). There are, though, a few disadvantages. Because of the high failure rate for newly founded sole proprietorships, it is difficult to acquire funds to acquire physical capital. The owners also face unlimited liability. This means that their personal wealth is at risk if the business fails or is sued. While sole proprietorships are the most common form of firm, most are very small

Partnerships are firms in which two or more individuals share ownership. This form of business organization provides an advantage over sole

proprietorships by allowing owners to pool their wealth, skills, and resources. The cost of this pooling of resources is some loss in autonomy for the owners. As in the case of sole proprietorships, partnerships are subject to unlimited liability.

A **corporation** is a business that exists as a legal entity separate from the owners. The corporation can enter contracts, own property, and borrow money as if it were a person. The stockholders of the corporation own the corporation. If the corporation declares bankruptcy, however, only the assets of the corporation are at risk. The owners' personal assets are not at risk (their only loss would be the wealth used to acquire the stock). This results in a situation in which the owners only have "limited liability." Offsetting this advantage is that corporate income is subject to double taxation

Utility

Wants are satisfied by consuming goods and services. The want satisfying power of goods and services is called *utility*.

Law of diminishing marginal utility

We live in the pursuit of satisfying our wants. However, the process of satisfying wants is influenced by the law of diminishing marginal utility. When a person consumes a good successively, the utility derived from the consumption of each successive unit of the good goes on decreasing, becomes zero and then turns negative which forces consumption of the good to stop.

Alfred Marshall defined the law as follows:

“The additional benefit which a person derives from a given increase of his stock of a thing diminishes with every increase in stock that he already has”.

The law operates for two reasons:

- i) Each want to satiable; and
- ii) Goods are imperfect substitutes for one another and they tend to be consumed in appropriate proportions.

The law could be explained using an example:

