Unit2

Theory of Externalities-Externalities under Perfect Competition-Imperfect Competition-Pigous's version-Market Failure-Pareto Optimality-Coase Theorem-Limits to Growth

THEORY OF EXTERNALITIES

Introduction

Externality means that the production or consumption of one individual's activity or an activity of the firm will affect the standard of living of another individual firm, about which the former is not bothered, due to absence of market transaction between the former and the later. This can be illustrated by mosphere causes damage and reduces the quality of air used by the inhabitants, about which the firm running the factory is not concerned for the annoyance created.

Externalities or spillovers

The fact that business firm running the factory causes adverse externality without paying any cost, helps to explain the failure of the market mechanism which does an imperfect job of protecting the.

This type of negative externalities and the failure of the market system have become pervasive and general in the economic world of production and consumption. This suggests the need for policy makers to use effective insturments of policy to deal with externalities. "Externalities are not exceptional phenomena; they are everywhere about us, embedded in the working of our economy".

The basic theory of environmental economics has its genesis in welfare Economics. As a matter of fact, many Economists, consider environmental economics, as a branch of Welfare Economics.

Perfect competition and Externalities

The goal of profit maximization leads perfectly competitive firms in equilibrium to produce at a level of output at which price equals marginal cost. This equality between price and marginal cost is a crucial link in the chain of logic that concludes with the identification of maximum social welfare with the outcome of a system of competitive private markets.

In the figure the incremental costs of production could be shown as the marginal private cost(MPC) schedule.

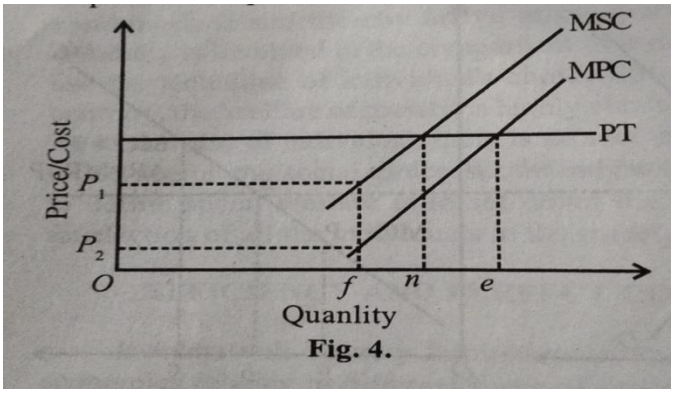

Fig. 4.

The MPC schedule includes the incremental costs of labour materials and capital to the firm. Another marginal cost schedule that includes all the costs of textile production , both private and external. This is alternative marginal social cost (MSC) schedule. It lies above the MPC schedules at every quantity. The vertical difference between the MPC and the MSC schedules at any given quantity measurs thee external, per extra unit of output of textile production. For e.g., th MPC of producing the *of* th unit of textile is P_2 , but the MSC of this units P_1. The difference , P_1 -P_2 is marginal external cost of producing the *ofth* unit of textiles.

As we are assuming that all markets are perfectly competitive, the manager of textile firm maximizes profits by production of an output of Oe units, where P_T =MPC. The excess of Ne units between the private optimal level of production Oe and social optimal level On represents overproduction of textiles. Society would be better off with On units of textile production than with Oe units because resources used to produce the Ne units have greater net productive value in other employment.

IMPERFECT MARKET

Differences between perfect market and imperfect market

1. In a perfect market the firm, the seller will have no power to fix the selling price. He is only a price taker and not a price maker. But in a imperfect market, the firm will have some powers to affect the market price. The extreme form of imperfection is monopoly
2. In a perfectly competitive market, the firm can sell any quantity at the same price. Larger quantities can be sold only at a lesser price. This is to say that the demand curve of the firm will be a descending curve, showing that larger quantities could be sold only at a lesser price.
3. In perfect market, the price will be equal to marginal cost. But in the case of firm under imperfect market the selling price will be higher than the marginal cost of production.
4. In perfect market the firm will be producing the maximum and the price will be minimum. But in imperfect market the production will be less and the price will be higher than the competitive price.

Whatever be the type of market the motivating force behind will be maximization of profit which will be achieved by equating MC to MR (MC=MR). For the sake of simplicity, extreme case of imperfection, i.e., monopoly is discussed.

Monopoly and Externalities

Under perfect competition, the firm produces more at a lesser price. On the other hand, in the case of monopoly, thee firm produces less and less prices at a higher level.i.e., more than marginal cost. These two effects work in opposite directions and will tend to offset each other. Any one of these effects may dominate.

The cumulative effect of monopoly with externalities cannot be determined without empirical examination case by case to assesss the extent of each problem. The environmental policy and anti trust activities should be well coordinated to find solution for the cases.

PIGOU'S VERSION

Externalities are costs or benefits of economic activities, that are not borne by the consumers and producers, but are spilled over to others. The affected parties, do not receive any compensation for the external costs or benefits.

Pigou's solution was to impose a tax on each unit of output. The industry would face higher private marginal costs and the competitive output would be reduced.

There are few problems with this approach:

1. It tacitly assumes a given technology translating output into pollution. Reduction in pollution occurs only through reduction in output rather than through an implementation of different technology.
2. Of producers differ in pollution technology (some pollute less than others at the same level of output) the tax is inefficient.

MARKER FAILURE-PARETO OPTIMALITY

An individual is said to be efficient when the person maximizes the consumption with the available resources or income. To put it in the other way, an individual is said to be efficient, if the person makes minimum expenditure to attain a particular level of consumption. In the same way, a firm is said to be efficient, if it

produces maximum output with available resources or minimum investment or expenditure.

To put it shortly, efficiency connotes maximum output with very minimum resources or maximum consumption with minimum income. In the same manner, we can say that, an economy is said to be very efficient if it can maximize the satisfaction of the society with minimum resources.

This aggregation of satisfaction is not in any way physical measurement like tons or meters, but by subjective values attributed to different goods and services by individual consumer units. This maximization of satisfaction for the entire society as a whole is termed maximum social welfare with minimum social cost.

Maximum social welfare is a situation in the society where it would be impossible, even conceptually, to make any readjustment of production and consumption arrangements to make even one household better off without making some other household better off without making some other household worse off. As long as such a costless readjustment can be effected in a society, it has not attained state of Maximum Social Welfare (MXSW), and this is exactly what is called **Pareto's Optimum.**

Though Pareto-Optimum can define efficiency in resource allocation it would be highly geralised as the existence of an infinite number of income distributions would result in an infinite number of Pareto Optimal States. From the environmental perspective the approach is simplified as it works by the "polluters pay" principle. However according to politicians and economists the entire program is governed by the distribution of costs and benefits.

Equity and Benefits

The problem of equity analysis is the incidence of pollution falls on the rich, the poor, or everyone in society. Environmental quality is a luxury good and will therefore not be demanded by the poorer sections of society as they would be more concerned with essentials. The priorities of thee poor are different from those of the rich.

COASE THEOREM

Property rights approach proposed by R.H.Coase (1060) to environmental allocation has become very popular and it is known as Coase Theorem. Accordingly, let exclusive property titles to the environment be defined and let them be transferable. Let there be no transaction costs and individuals maximize their utilities and let them be non altruistic. In such a situation, the bargaining solution among different users of the environment will result a Pareto-optimal allocation of the environment. The resulting allocation is independent of the initial distribution of property rights.

Assumptions of the Coase Theorem

Assume a world in which some producers and consumers subjected to externalities generated by other producers and consumers. Further assume,

1. Everyone has perfect information
2. Consumers and Producers are price takers
3. There is cost less court system for enforcing agreements
4. Consumers maximize utility and producers maximize profits
5. There are no incomes or wealth effects
6. No transaction costs

   In Coase Theorem, the optimal environmental allocation is independent of the distribution of property rights. The wider implication is that by defining private property rights conditions by which decentralized bargaining produce efficient levels of environmental quality can be defined.

LIMIT TO GROWTH

The ultimate issue arising out of the study of Environmental Economics is the question of limiting economic growth to maintain environmental quality. No doubt, economic growth has increased the standard of living in

the economic sense; but it has caused pollution, degradation, poor quality of life and slow suicide of human race, as we are at the epicenter of ecological destruction.

Growth and environment do not go hand in hand. Growth must be controlled in order to achieve a good environment. There is no point in having a very high growth rate when the people are suffering due to poor environment standards. The growth rate that achieves optimal use of the resources and no exploitation is the desired growth rate. It is here where the government plays a vital role. It has various fiscal tools like taxes, subsidies, etc. that can be used to control the flow of investment and help save the environment from greedy entrepreneurs.

GNP is often used as a tool to measure economic growth and indicates the direction in which the economy is moving. But growth economists have lonf recognized the limitations of using increases in GNP as an indicator of increased social welfare. But then with the high economic growth, there is the case of high pollution which must be taken into account.

Issues in Limits to Growth

The principal issue is whether there are physical limits to the economic growth process. Obviously, the should be. Global resources are finite and we cannot produce infinitely with finite resources, unless we have 100 per cent recycling of residuals.

Under these circumstances, the only sensible issues to be considered are

a. When such limits of growth are reached and
b. What is the path by which these limits are reached.

Club of Rome

Club of Rome was originally founded by Aurelio Peccei. This consists of 75 eminent scientists, economists, sociologists, and industrialists drawn from about 25 nations of the world constituting a ‘ Elitist multinational intellectual brotherhood’. The members of this Club of Rome have a common conviction that continued economic growth would result in the exhaustion of resources on thee planet and a time would come when

there would be a planetary collapse, unless something is done timely to avert that collapse.

The Club of Rome prepared a model which has come to be known as “World Model”