

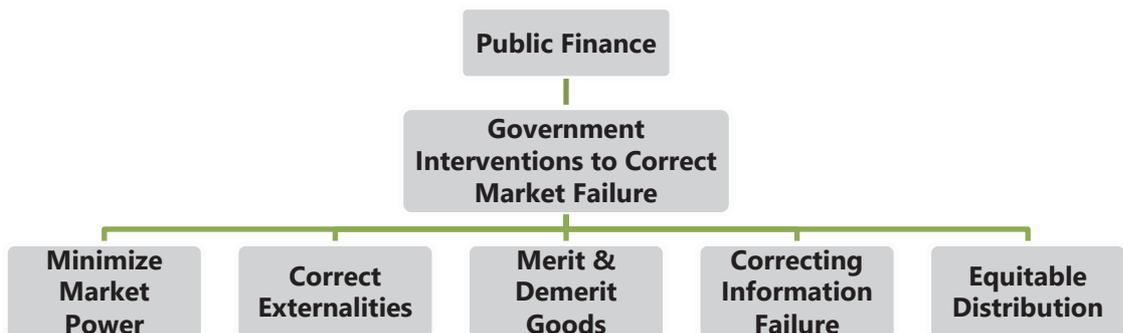
UNIT III: GOVERNMENT INTERVENTIONS TO CORRECT MARKET FAILURE

LEARNING OUTCOMES

At the end of this unit, you will be able to:

- Describe the different forms of government intervention for correcting market failure
- Evaluate the outcomes of intervention in case of public goods, merit goods and demerit goods
- Illustrate how intervention combat market power, externalities, inequalities and information failure
- Elucidate the functioning and outcomes of price intervention

UNIT OVERVIEW

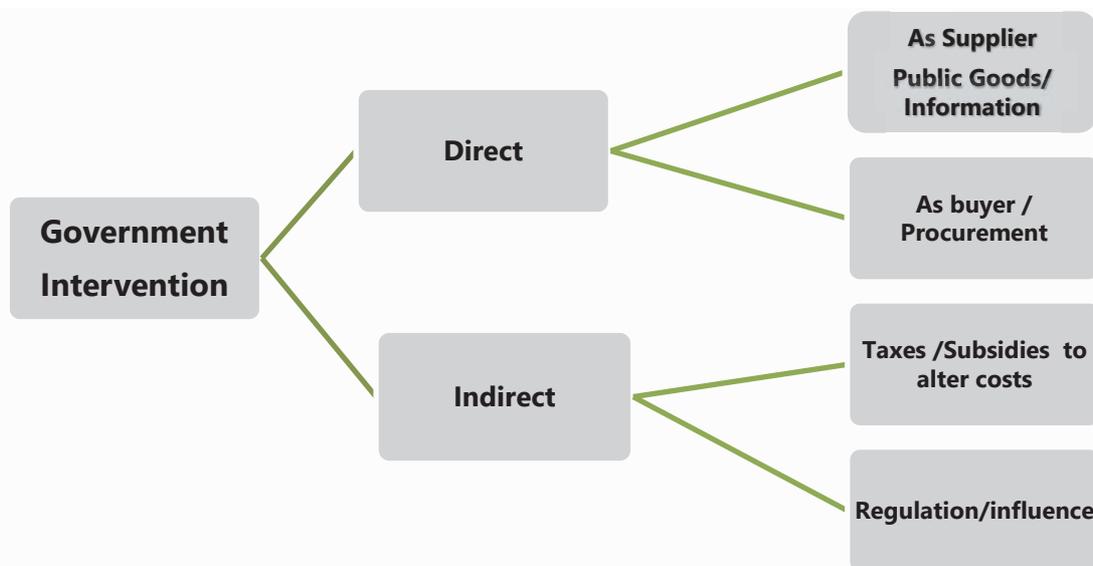


In the previous unit, we have seen that under a variety of circumstances the market and the price system fail to achieve productive and allocative efficiency in an economy. As such, it should be construed that the existence of a free market does not altogether eliminate the need for government and that government

intervention is essential for the efficient functioning of markets. The focus of this unit will be the intervention mechanisms which governments adopt to ensure greater welfare to the society and the probable outcomes of such market interventions.

Government plays a vital role in creating the necessary physical and institutional infrastructure within which fair and open competitive markets can exist. The physical infrastructure such as roads, bridges, airports and waterways are often provided by governments. The government-provided institutional infrastructure namely, the legal and regulatory framework, is essential for a well functioning market. It is indispensable that government establishes the 'rule of law', and in this process, creates and protects property rights, ensures that contracts are upheld and sets up necessary institutions for proper functioning of markets. For achieving this, an appropriately framed competition and consumer law framework that regulates the activities of firms and individuals in their market exchanges should be in place.

We have seen in the previous unit that the major reasons for market failure are market power, externalities, public goods, and incomplete information. Before we go into the details of government intervention, we shall try to have a quick glimpse of the forms of government intervention.





3.1 GOVERNMENT INTERVENTION TO MINIMIZE MARKET POWER

As we are aware, market power—exercised either by sellers or buyers— is an important factor that contributes to inefficiency because it results in higher prices than competitive prices. In addition, market power also tends to restrict output and leads to deadweight loss. Because of the social costs imposed by monopoly, governments intervene by establishing rules and regulations designed to promote competition and prohibit actions that are likely to restrain competition. These legislations differ from country to country. For example, in India, we have the Competition Act, 2002(as amended by the Competition (Amendment) Act, 2007) to promote and sustain competition in markets. The Antitrust laws in the US and the Competition Act, 1998 of UK etc are designed to promote competitive economy by prohibiting actions that are likely to restrain competition. Such legislations generally aim at prohibiting contracts, combinations and collusions among producers or traders which are in restraint of trade and other anticompetitive actions such as predatory pricing.

Other measures include:

- Market liberalisation by introducing competition in previously monopolistic sectors such as energy, telecommunication etc
- Controls on mergers and acquisitions if there is possible market domination
- Price capping and price regulation based on the firm's marginal costs, average costs, past prices, or possible inflation and productivity growth
- Profit or rate of return regulation
- Performance targets and performance standards
- Patronage to consumer associations
- Tough investigations into cartelisation and unfair practices such as collusion and predatory pricing
- Restrictions on monopsony power of firms
- Reduction in import controls and
- Nationalisation

It is common that some of the regulatory responses of government to incentive failure tend to create and protect monopoly positions of firms that have

developed unique innovations. For example, patent and copyright laws grant exclusive rights of products or processes to provide incentives for invention and innovation. Another example is that of permitted natural monopoly. Natural monopolies can produce the entire output of the market at a cost that is lower than what it would be if there were several firms. If a firm is a natural monopoly, it is more efficient to permit it to serve the entire market rather than have several firms compete each other. Examples of such natural monopoly are electricity, gas and water supplies. The Policy options for limiting market power in case of natural monopolies include price regulation in the form of setting maximum prices that firms can charge. In some cases, the government's regulatory agency determines an acceptable price, so as to ensure a competitive or fair rate of return. This practice is called rate-of-return regulation.



3.2 GOVERNMENT INTERVENTION TO CORRECT EXTERNALITIES

As you may easily recall, freely functioning markets produce externalities because producers and consumers need to consider only their private costs and benefits and not the costs imposed on or benefits accrued to others. To promote the overall welfare of all members of society, social returns should be maximized and social costs minimized. This implies that all costs and benefits need to be internalized by consumers and producers while making buying and production decisions. Otherwise, market outcomes involve underproduction of goods or services that entail positive externalities or overproduction in the case of negative externalities.

Governments have numerous methods to reduce the effects of negative externalities and to promote positive externalities. We shall first examine how government regulation can deal with the inefficiencies that arise from negative externalities. Since the most commonly referred negative externality is pollution, we shall take it as an exemplar in the following discussion.

Government initiatives towards negative externalities may be classified as:

1. Direct controls or regulations that openly regulate the actions of those involved in generating negative externalities, and
2. Market-based policies that would provide economic incentives so that the self-interest of the market participants would achieve the socially optimal solution.

Direct controls, also known as command solutions, prohibit specific activities that explicitly create negative externalities or require that the negative externality be limited to a certain level. For example, government may limit the amounts of certain pollutants released into water and air by individual firms or make it mandatory to use pollution control devices. Licensing, production quotas and mandates regarding acceptable production processes are other examples of direct intervention by governments. Production, use and sale of many commodities and services are prohibited in our country. Smoking is completely banned in many public places. Stringent rules are in place in respect of tobacco advertising, packaging and labelling etc.

Governments may pass laws to alleviate the effects of negative externalities. Government stipulated environmental standards are rules that protect the environment by specifying actions by producers and consumers. For example, India has enacted the Environment (Protection) Act, 1986. The government may, through legislation, fix emissions standard which is a legal limit on how much pollutant a firm can emit. The set standard ensures that the firm produces efficiently. If the firm exceeds the limit, it can invite monetary penalties or/and criminal liabilities. The firms have to install pollution-abatement mechanisms to ensure adherence to the emission standards. This means additional expenditure to the firm leading to rise in the firm's average cost. New firms will find it profitable to enter the industry only if the price of the product is greater than the average cost of production plus abatement expenditure.

Another method is to charge an emissions fee which is levied on each unit of a firm's emissions. The firms can minimize costs and enhance their profitability by reducing emissions. Governments may also form special bodies/ boards to specifically address the problem: for instance the Ministry of Environment & Forest, the Pollution Control Board of India and the State Pollution Control Boards.

The market-based approaches—environmental taxes and cap-and-trade – operate through price mechanism to create an incentive for change. In other words, they rely on economic incentives to accomplish environmental goals at lesser costs. The market based approaches focus on generation of a market price for pollution. This is achieved by:

1. Setting the price directly through a pollution tax
2. Setting the price indirectly through the establishment of a cap-and-trade system.

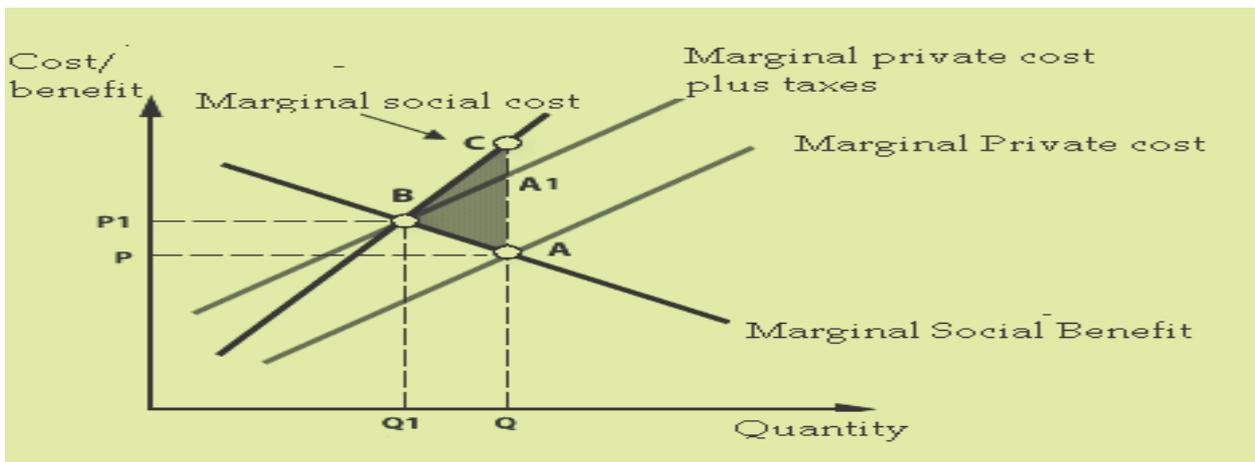
An externality is internalised if the persons or group that generated the externality incorporate into their private or internal cost- benefit calculations the external benefits (in the case of positive externality) and external costs (in the case of negative externality) that third parties bear. In other words, the key to internalizing an externality (both external costs and benefits) is to ensure that those who create the externalities include them while making decisions.

One method of ensuring internalization of negative externalities is imposing pollution taxes. The size of the tax depends on the amount of pollution a firm produces. These taxes are named Pigouvian taxes after A.C. Pigou who argued that an externality cannot be alleviated by contractual negotiation between the affected parties and therefore taxation should be resorted to. These taxes, by 'making the polluter pay', seek to internalize the external costs into the price of a product or activity. More precisely, the tax is placed on the externality itself (the amount of pollution emissions) rather than on output (say, amount of steel). For each unit of pollution, the polluter must choose either to pay the tax or to reduce pollution through any means at its disposal. Tax increases the private cost of production or consumption as the case may be, and would decrease the quantity demanded and therefore the output of the good which creates negative externality. The proceeds from the tax, some argue, can be specifically earmarked for projects that protect or enhance environment.

The following figure illustrates the market outcomes of pollution tax.

Figure 2.3.1

Market Outcomes of Pollution Tax



When negative production externalities exist, marginal social cost is greater than marginal private cost. The free market outcome would be to produce a socially non optimal output level Q at the level of equality between marginal private cost and marginal private benefit. (Since externalities are not taken into account, marginal private benefit would be contemplated as marginal social benefit). When negative externalities are present, the welfare loss to the society or dead weight loss would be the shaded area ABC . The tax imposed by government (equivalent to the vertical distance AA_1) would shift the cost curve up by the amount of tax, prices will rise to P_1 and a new equilibrium is established at point B , where the marginal social cost is equal to marginal social benefit. Output level Q_1 is socially optimal and eliminates the welfare loss on account of overproduction. The ideal corrective tax is equal to the negative externality. A tax on each unit of a good equal to the external harm it causes can correct a negative externality, and bring the market to the efficient quantity of the good. Thus the tax internalises the externality by making pollution an accounting cost.

However, there are problems in administering an efficient pollution tax.

Arguments against pollution taxes

- Pollution taxes are difficult to determine and administer because it is difficult to discover the right level of taxation that would ensure that the private cost plus taxes will exactly equate with the social cost.
- If the demand for the good is inelastic, the tax may only have an insignificant effect in reducing demand. In such cases, the producers will be able to easily shift the tax burden in the form of higher product prices. This will have an inflationary effect with little effect on the level of production and may reduce consumer welfare.
- The method of taxing the polluters has many limitations because it involves the use of complex and costly administrative procedures for monitoring the polluters.
- This method does not provide any genuine solutions to the problem. It only establishes an incentive system for use of methods which are less polluting.
- Pollution taxes also have potential negative consequences on employment and investments because high pollution taxes in one country may encourage producers to shift their production facilities to those countries with lower taxes.

The second approach to establishing prices indirectly is 'tradable emissions permits'. The use of tradable permits to limit emissions is often called 'cap and trade'. A tradable permit is a license that allows a company to release a unit of pollution into the environment over some period of time. By issuing a fixed number of permits, the government determines the total level of pollution that can be legally emitted during each period (the "cap"). Each firm has permits specifying the number of units of emissions that the firm is allowed to generate. A firm that generates emissions above what is allowed by the permit is penalized with substantial monetary sanctions. By allocating fewer permits than the free pollution level, the regulatory agency creates a shortage of permits which then leads to a positive price for pollution, just as in the tax case.

The firms can sell their government-issued permits to other firms in an organized market. Since the permits are tradable (the firm can sell for a price), a polluting firm faces an opportunity cost i.e. for each unit of pollution that it creates, it must either buy a permit, or it must forgo the revenue it could earn by selling the permit to some other firm. A firm whose technology would make it very costly to reduce pollution generally buys permits in the market. At the same time, a firm whose technology enables it to reduce pollution rather cheaply will sell permits. Since these permits are transferable different pollution levels are possible across the regulated entities.

Under this system, a market in permits to pollute will emerge. The high polluters have to buy more permits, which increases their costs, and makes them less competitive and less profitable. The low polluters receive extra revenue from selling their surplus permits, which makes them more competitive and more profitable. Therefore, firms will have an incentive not to pollute.

The general public, however, is not affected by the trade because total emissions remain unchanged. Thus, the price of the permit becomes part of the marginal cost of producing the polluting good. With higher marginal cost, the market supply curve shifts upward, and the market equilibrium price of the polluting good rises as well. This can move the quantity of a polluting good toward its efficient level, similar to the effects of a tax. Tradable permits allow consumers and firms to respond to prices when determining how much of the negative externality to create. Tradable permits have been used since the early 1980s to reduce several types of pollution in the United States. In 1994 the United States began a cap and trade system for the sulphur dioxide emissions that cause acid rain by issuing permits to power plants based on their historical consumption of

coal. India is experimenting with cap-and-trade in the form of Perform, Achieve & Trade (PAT) scheme and carbon tax in the form of a cess on coal.

Following are some advantages claimed for tradable permits:

- The system allows flexibility and rewards efficiency. We can reasonably expect that the firms will have a strong incentive to reduce pollution, since permits can be sold off for profit.
- The 'cap' puts a clear upper limit on the quantity of pollution that may be generated in each period
- The market for permits enables a clear price for pollution and helps in internalizing the costs. The price of permits can be increased over time by reducing the number of permits available.
- It is administratively cheap and simple to implement and ensures that pollution is minimised in the most cost-effective way.
- It also provides strong incentives for innovation to combat pollution.
- Consumers may benefit if the extra profits made by low pollution firms are passed on to them in the form of lower prices.

The main argument in opposition to the employment of tradable emission permits is that they do not, in reality, stop firms from polluting the environment; they only provide an incentive to them to do so. Moreover, if firms have monopoly power of some degree along with a relatively inelastic demand for its product, the extra cost incurred for procuring additional permits so as to further pollute the atmosphere, could easily be compensated by charging higher prices to consumers.

The two interventions mentioned above i.e. permits and taxes make use of market forces to encourage consumers and producers to take externalities into account when planning their consumption and production. In other words, the polluters are forced to consider pollution as a private cost.

We have been dealing with negative production externalities in the above discussion. We shall now look into the case of positive externalities. A positive consumption (production) externality occurs when consumption (production) of a good cause positive benefits to a third party. This means that the social benefits of consumption or production exceed the private benefits.

In the case of positive consumption externality, the social marginal benefit (SMB) is higher than private marginal benefit (PMB). Education, preventive vaccination

etc are examples of consumption having positive externality. In the case of positive production externality, the marginal social cost (MSC) is less than private marginal cost. Research and development, production of education, healthcare and similar merit goods fall under this. The intersection of the marginal social cost (MSC) and the social value curve (MSB curve) determines the optimal level of output.

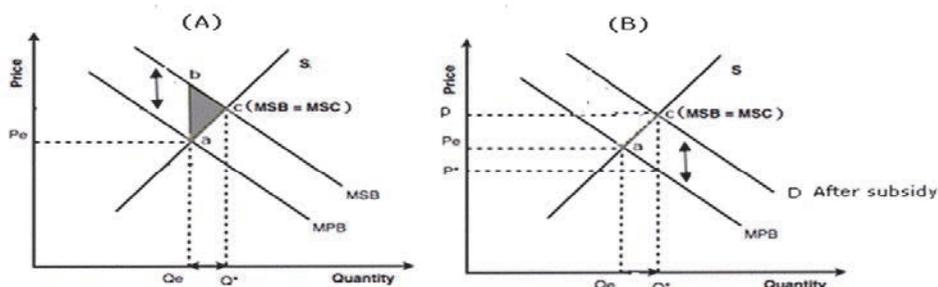
Though positive externality is associated with external benefits, we still call it a market failure because, left to market, there will be less than optimal output. In a free market without government intervention, there will be under-consumption of goods with positive consumption externalities. In case of goods with positive production externality, the market will produce less than the efficient quantity.

Since positive externalities promote welfare, governments implement policies that promote positive externalities. When positive externalities are present, government may attempt to solve the problem through corrective subsidies to the producers aimed at either increasing the supply of the good or through corrective subsidies to consumers aimed at increasing the demand for the good.

We shall first look into consumption externalities with the classic example of education. A competitive market in education with no government interference would be inefficient. In panel A of the following diagram, the horizontal axis measures the quantity of education and the vertical axis measures the price of education. The demand curve (MPB) for education does not reflect positive externalities of education consumption. Without government intervention, the market reaches inefficient equilibrium at point 'a' with Q_e amount of education at P_e prices. The distance 'a b' (marked by arrow) is the value of the positive externality. The efficient level of output is Q^* corresponding to point 'c' where the MSB curve intersects the supply curve. The total deadweight loss (welfare loss) from all the education not provided is the shaded triangle 'b a c'.

Figure 2.3.2

Effect of Government Subsidy



A government subsidy is a market-based approach that changes the price of the product and allows individual consumers to respond to those prices and make their own decisions. Subsidies to consumers of a good with positive externality will increase the marginal private benefit of consumption (since individuals now get paid to buy a good) and increase the demand for the good.

In panel B, a subsidy equal to the value of the positive externality (marked by arrow) is paid to each student. The subsidy causes each student to add the same amount to the value that he or she places on education and shifts up the demand curve by that amount. The demand curve now rises to the level of the MSB curve, and the market equilibrium moves to Q^* -the efficient number. In the new equilibrium, the price of education rises from P_e to P ; however the students, after accounting for the subsidy, pay only P^* so that more of them choose to acquire education. Thus, a subsidy on each unit of a good, equal to the external benefits it creates can correct a positive externality and bring the market to an efficient output level.

As we are aware, a corrective production subsidy involves government paying part of the cost to the firms in order to promote the production of goods having positive externalities. This is in fact a market-based policy as subsidies to producers would lower their cost of production. What would be the outcome of government intervention through subsidy? A subsidy on a good which has substantial positive externalities would reduce the marginal private costs of production, increase the supply, shift the supply curve to the right, reduce the price and increase the quantity demanded of the subsidised good. A higher output that would equate marginal social benefit and marginal social cost is socially optimal.

In the case of products and services whose externalities are vastly positive and pervasive, government enters the market directly as an entrepreneur to produce and provide them. Public education and health care are the obvious examples. Another example, fundamental research to protect the futuristic technology interest of the society is, in most cases, funded by government as the market may not be willing to provide them. Governments also engage in direct production of environmental quality. Examples are: afforestation, reforestation, protection of water bodies, treatment of sewage and cleaning of toxic waste sites.



3.3 GOVERNMENT INTERVENTION IN THE CASE OF MERIT GOODS

Merit goods are goods which are deemed to be socially desirable and therefore the government deems that its consumption should be encouraged. Substantial positive externalities are involved in the consumption of merit goods. Left to the market, only private benefits and private costs would be reflected in the price paid by consumers. This means, compared to what is socially desirable, people would consume inadequate quantities. Examples of merit goods include education, health care, welfare services, housing, fire protection, waste management, public libraries, museum and public parks.

In contrast to pure public goods, merit goods are rival, excludable, limited in supply, rejectable by those unwilling to pay, and involve positive marginal cost for supplying to extra users. Merit goods can be provided through the market, but are likely to be under-produced and under-consumed through the market mechanism so that social welfare will not be maximized.

The additional reasons for government provision of merit goods are:

- Information failure is widely prevalent with merit goods and therefore individuals may not act in their best interest because of imperfect information.
- Equity considerations demand that merit goods such as health and education should be provided free on the basis of need rather than on the basis of individual's ability to pay.
- There is a lot of uncertainty as to the need for merit goods E.g. health care. Due to uncertainty about the nature and timing of healthcare required in future, individuals may be unable to plan their expenditure and save for their future medical requirements. The market is unlikely to provide the optimal quantity of health care when consumers actually need it, because they may be short of the necessary finances to pay the market price.

The possible government responses to under-provision of merit goods are regulation, subsidies, direct government provision and a combination of government provision and market provision. Regulation determines how a private activity may be conducted. For example, the way in which education is to be imparted is government regulated. Governments can prohibit some type of goods and activities, set standards and issue mandates making others oblige. For

example, government may make it compulsory to avail insurance protection. Compulsory immunization may be insisted upon as it helps not only the individual but also the society at large. Government could also use legislation to enforce the consumption of a good which generates positive externalities. E.g. use of helmets, seat belts etc. The Right of Children to Free and Compulsory Education Act, 2009 which mandates free and compulsory education for every child of the age of six to fourteen years is another example. A variety of regulatory mechanisms may also be set up by government to enhance consumption of merit goods and to ensure their quality. Government can also provide free information to consumers, to compensate for the information failure that discourages consumption.

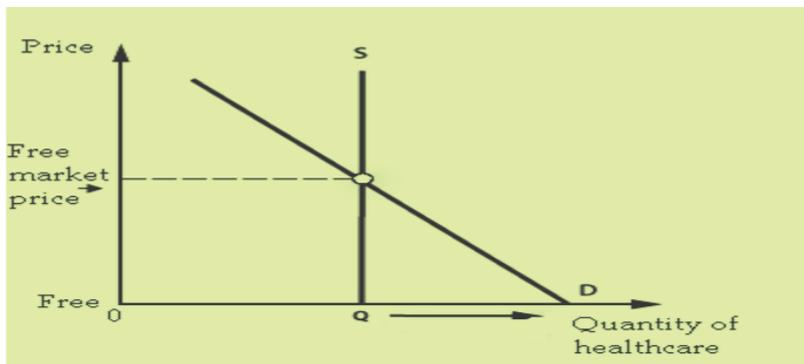
An additional option is to compel individuals to consume the good or service that generates the external benefit. For example, if suspected of having a contagious disease such as COVID, an individual may be forced to get medical treatment. Universal compulsory schooling for children upto 14 years is another example.

When governments provide merit goods, it may give rise to large economies of scale and productive efficiency apart from generating substantial positive externalities and overcoming the problems mentioned above.

The ultimate encouragement to consume is to make the good completely free at the point of consumption, such as with freely available hospital treatment for contagious diseases. When merit goods are directly provided free of cost by government, there will be substantial demand for the same. As can be seen from the following diagram, when people are required to pay the free market price, people would consume only OQ quantity of healthcare. If provided free at zero prices, the demand OD far exceeds supply.

Figure 2.3.3

Consumption of Merit Goods at Zero Price





3.4 GOVERNMENT INTERVENTION IN THE CASE OF DEMERIT GOODS

Demerit goods are goods which are believed to be socially undesirable. Examples of demerit goods are cigarettes, alcohol, intoxicating drugs etc. The consumption of demerit goods imposes significant negative externalities on the society as a whole and therefore the private costs incurred by individual consumers are less than the social costs experienced by the society. The production and consumption of demerit goods are likely to be more than optimal under free markets. The price that consumers pay for a packet of cigarettes is market determined and does not account for the social costs that arise due to externalities. In other words, the marginal social cost will exceed the market price and overproduction and over-consumption will occur, causing misallocation of society's scarce resources. (Refer Figure 2.2.1 in unit 2). However, it should be kept in mind that all goods with negative externalities are not essentially demerit goods; e.g. Production of steel causes pollution, but steel is not a socially undesirable good.

The generally held argument is that consumers overvalue demerit goods because of imperfect information and they are not the best judges of welfare with respect to such goods. The government should therefore intervene in the marketplace to discourage their production and consumption. How do governments correct market failure resulting from demerit goods?

- At the extreme, government may enforce complete ban on a demerit good. e.g. Intoxicating drugs. In such cases, the possession, trading or consumption of the good is made illegal.
- Through persuasion which is mainly intended to be achieved by negative advertising campaigns which emphasize the dangers associated with consumption of demerit goods.
- Through legislations that prohibit the advertising or promotion of demerit goods in whatsoever manner.
- Strict regulations of the market for the good may be put in place so as to limit access to the good, especially by vulnerable groups such as children and adolescents.
- Regulatory controls in the form of spatial restrictions e.g. smoking in public places, sale of tobacco to be away from schools, and time restrictions under which sale at particular times during the day is banned.

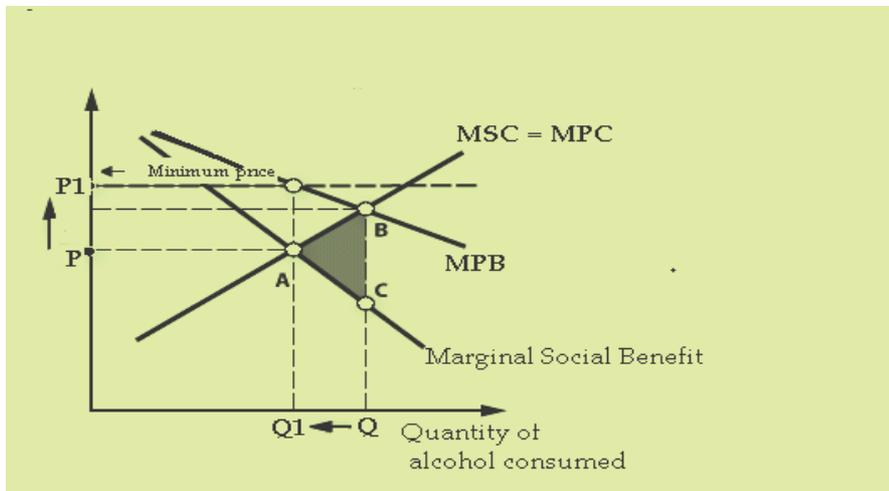
Imposing unusually high taxes on producing or purchasing the good making them very costly and unaffordable to many is perhaps the most commonly used method for reducing the consumption of a demerit good. For example, the GST Council has bracketed four items namely, high end cars, pan masala, aerated drinks and tobacco products into demerit goods category and therefore these would be taxed (with a cess being added on to the basic tax) at much higher rates than the top GST slab of 28 per cent.

However, there are various limitations for government to succeed in producing the desired optimal effects in the case of demerit goods. There are many practical difficulties in imposing taxes. In order to impose a tax which is equivalent to the marginal external cost, the governments need to know the exact value of the marginal external cost and then ascribe accurate monetary value to those negative externalities. In practice, this is extremely difficult to do.

The government can fix a minimum price below which the demerit good should not be exchanged. The effect of such minimum price fixation above equilibrium price is shown in the figure below:

Figure 2.3.4

Outcomes of Minimum Price for a Demerit Good



Free market equates marginal private cost with marginal private benefit (point B) and produces an output of a demerit good Q at which marginal social benefit (MSB) is much less than marginal private benefit (MPB). At this level of output, there is a divergence (BC) between marginal private benefit (MPB) and marginal

social benefit (MSB). The shaded area represents loss of social welfare. If the government determined minimum price is P_1 , demand contracts and the quantity of alcohol consumed would be reduced to Q_1 . At Q_1 level of output, marginal social benefit (MSB) is equal to marginal social cost (MSC) and the quantity of alcohol consumed is optimal from the society's point of view.

The demand for demerit goods such as, cigarettes and alcohol is often highly inelastic, so that any increase in price resulting from additional taxation causes a less than proportionate decrease in demand. Also, sellers can always shift the taxes to consumers without losing customers.

The effect of stringent regulation such as total ban is seldom realized in the form of complete elimination of the demerit good; conversely such goods are secretly driven underground and traded in a hidden market.



3.5 GOVERNMENT INTERVENTION IN THE CASE OF PUBLIC GOODS

We have seen in the previous unit that public goods which are non excludable are highly prone to free rider problem and therefore markets are unlikely to get established. Direct provision of a public good by government can help overcome free-rider problem which leads to market failure. The non-rival nature of consumption provides a strong argument for the government rather than the market to provide and pay for public goods. In the case of such pure public goods where entry fees cannot be charged, direct provision by governments through the use of general government tax revenues is the only option.

Excludable public goods can be provided by government and the same can be financed through entry fees. A very commonly followed method is to grant licenses to private firms to build a public good facility. Under this method, the goods are provided to the public on payment of an entry fee. In such cases, the government regulates the level of the entry fee chargeable from the public and keeps strict watch on the functioning of the licensee to guarantee equitable distribution of welfare.

Some public goods are provided by voluntary contributions and private donations by corporate entities and nongovernmental organisations. Self-interested firms or individuals sometimes provide public goods because they can indirectly make money out of them. The most important public goods like defence, establishment

and maintenance of legal system, fire protection, disease prevention etc are invariably provided by the government.

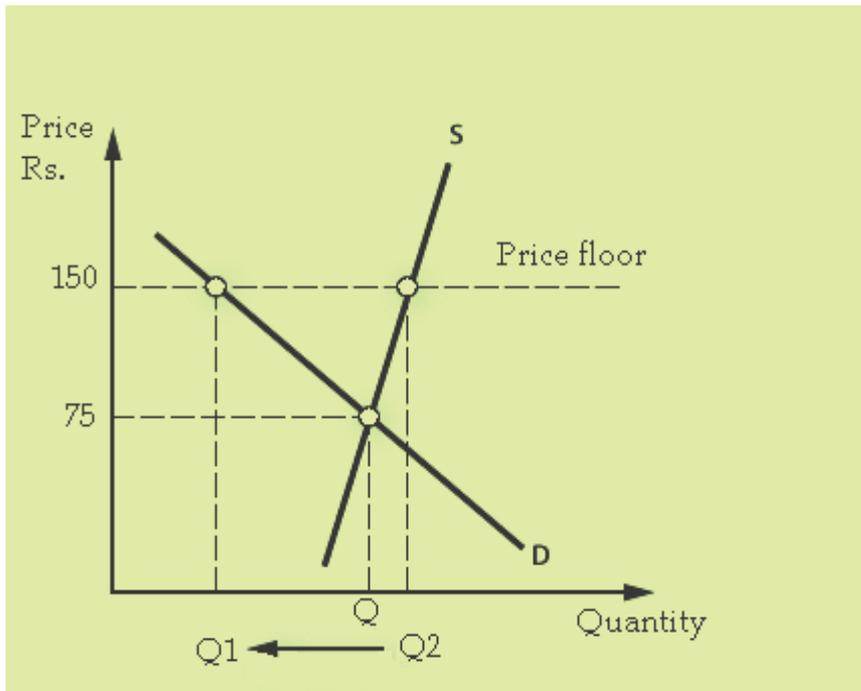
Certain goods are produced and consumed as public goods and services despite the fact that they can be produced or consumed as private goods. This is because, left to the markets and profit motives, these may prove dangerous to the society. Examples are scientific approval of drugs, production of strategic products such as atomic energy, provision of security at airports etc.

3.6 PRICE INTERVENTION: NON MARKET PRICING

Price controls are put in place by governments to influence the outcomes of a market. Very often, there is strong political demand for governments to intervene in markets for various goods and services on grounds of fairness and equity. Price intervention generally takes the form of price controls which are legal restrictions on price. Price controls may take the form of either a price floor (a minimum price buyers are required to pay) or a price ceiling (a maximum price sellers are allowed to charge for a good or service). Fixing of minimum wages and rent controls are examples of such market intervention.

Government usually intervenes in many primary markets which are subject to extreme as well as unpredictable fluctuations in price. For example in India, in the case of many crops the government has initiated the Minimum Support Price (MSP) programme as well as procurement by government agencies at the set support prices. The objective is to guarantee steady and assured incomes to farmers. In case the market price falls below the MSP, then the guaranteed MSP will prevail. The following diagram will illustrate the effects of a price floor. Nevertheless, mere announcement of higher support prices for commodities, which are not effectively backed up by procurement arrangement, does not serve the purpose of remunerative levels of prices for producers.

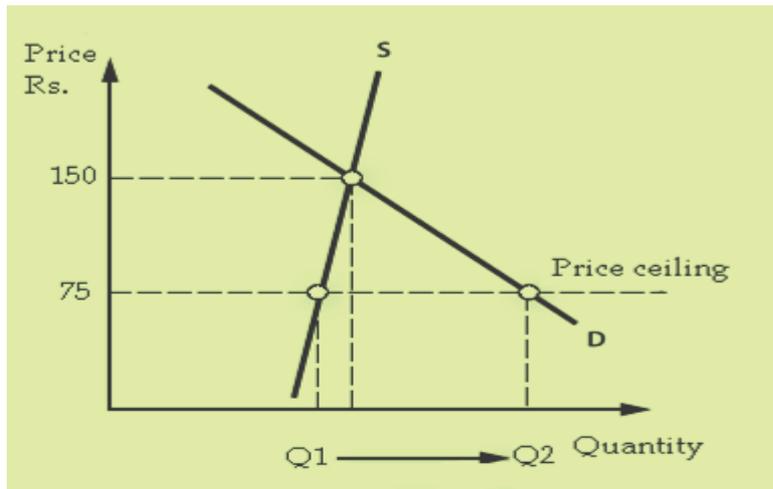
Figure 2.3.5
Market Outcome of Minimum Support Price



When price floors are set above market clearing price, suppliers are encouraged to over-supply and there would be an excess of supply over demand. At price ₹ 150/ which is much above the market determined equilibrium price of ₹ 75/, the market demand is only Q_1 , but the market supply is Q_2 .

When prices of certain essential commodities rise excessively, government may resort to controls in the form of price ceilings (also called maximum price) for making a resource or commodity available to all at reasonable prices. For example: maximum prices of food grains and essential items are set by government during times of scarcity. A price ceiling which is set below the prevailing market clearing price will generate excess demand over supply. As can be seen in the following figure, the price ceiling of ₹ 75/ which is below the market-determined price of ₹150/leads to generation of excess demand over supply equal to Q_1-Q_2 .

Figure 2.3.6

Market Outcome of Price Ceiling

With the objective of ensuring stability in prices and distribution, governments often intervene in grain markets through building and maintenance of buffer stocks. It involves purchases from the market during good harvest and releasing stocks during periods when production is below average.



3.7 GOVERNMENT INTERVENTION FOR CORRECTING INFORMATION FAILURE

For combating the problem of market failure due to information problems and considering the importance of information in making rational choices, the following interventions are resorted to:

- Government makes it mandatory to have accurate labelling and content disclosures by producers. Eg. Labelling on cigarette packets and nutritional information in food packages.
- Mandatory disclosure of information For example: SEBI requires that accurate information be provided to prospective buyers of new stocks.
- Public dissemination of information to improve knowledge and subsidizing of initiatives in that direction.
- Regulation of advertising and setting of advertising standards to make advertising more responsible, informative and less persuasive.



3.8 GOVERNMENT INTERVENTION FOR EQUITABLE DISTRIBUTION

One of the most important activities of the government is to redistribute incomes so that there is equity and fairness in the society. Equity can be brought about by redistribution of endowments with which the economic agents enter the market. Some common policy interventions include: progressive income tax, targeted budgetary allocations, unemployment compensation, transfer payments, subsidies, social security schemes, job reservations, land reforms, gender sensitive budgeting etc. Government also intervenes to combat black economy and market distortions associated with a parallel black economy. Government intervention in a market that reduces efficiency while increasing equity is often justified because equity is greatly appreciated by society.

The discussion above is far from being comprehensive; yet it points toward the numerous ways in which governments intervene in the markets. However, we cannot be sure whether the government interventions would be effective or whether it would make the functioning of the economy less efficient. Government failures where government intervention in the economy to correct a market failure creates inefficiency and leads to a misallocation of scarce resources occur very often. Government failure occurs when:

- intervention is ineffective causing wastage of resources expended for the intervention
- intervention produces fresh and more serious problems

There are costs and benefits associated with any Government intervention in a market, and it is important that policy makers consider all of the costs and benefits of a policy intervention.

SUMMARY

- Governments intervene in various ways to correct the distortions in the market which occur when there are deviations from the ideal perfectly competitive state.
- Because of the social costs imposed by monopoly, governments intervene by establishing rules and regulations designed to promote competition and prohibit actions that are likely to restrain competition.

- Natural monopolies such as electricity, gas and water supplies are usually subject to price controls.
- Government initiatives towards combating market failures due to negative externalities are either direct controls or market-based policies that would provide economic incentives.
- Direct controls prohibit specific activities that explicitly create negative externalities or require that the negative externality be limited to a certain level, for instance limiting emissions.
- Government may pass laws to alleviate the effects of negative externalities or fix emissions standard which is a legal limit on how much pollutant a firm can emit. It may charge an emissions fee which is levied on each unit of a firm's emissions.
- The market-based approaches– environmental taxes and cap-and-trade – operate through price mechanism to create an incentive for change.
- The key is to internalizing an externality (both external costs and benefits) is to ensure that those who create the externalities include them while making decisions.
- One method of ensuring internalization of negative externalities is imposing pollution taxes. Pigouvian taxes by 'making the polluter pay', seek to internalize external costs into the price of a product or activity.
- Pollution taxes are difficult to determine and administer due to difficulty to discover the right level of taxation, problems associated with inelastic nature of demand for the good and the problem of possible capital flight.
- Tradable emissions permits are marketable licenses to emit limited quantities of pollutants and can be bought and sold by polluters. The high polluters have to buy more permits and the low polluters receive extra revenue from selling their surplus permits.
- The system is administratively cheap and simple, allows flexibility and reward efficiency and provides strong incentives for innovation
- Subsidy is market-based policy and involves the government paying part of the cost to the firms in order to promote the production of goods having positive externalities
- Merit goods such as education, health care etc are socially desirable and have substantial positive externalities. They are rival, excludable, limited in supply,

rejectable by those unwilling to pay, and involve positive marginal cost for supplying to extra users.

- Left to the market, merit goods are likely to be under-produced and under-consumed so that social welfare will not be maximized.
- The possible government responses to under-provision of merit goods are regulation, legislation, subsidies, direct government provision and a combination of government provision and market provision.
- When governments provide merit goods, it may give rise to large economies of scale and productive efficiency and there will be substantial demand for the same.
- Demerit goods are goods which impose significant negative externalities on the society as a whole and are believed to be socially undesirable.
- The production and consumption of demerit goods are likely to be more than optimal under free markets. The government should therefore intervene in the marketplace to discourage their production and consumption.
- Steps taken by government include complete ban of the good, legislations, persuasion and advertising campaigns, limiting access to the good, especially by vulnerable groups,
- In the case of pure public goods where entry fees cannot be charged, direct provision by governments through the use of general government tax revenues is the only option. Excludable public goods can be provided by government and the same can be financed through entry fees.
- A very commonly followed method in the case of public good is to grant licenses to private firms to build a facility and then the government regulates the level of the entry fee chargeable from the public.
- Due to strategic and security reasons, certain goods are produced and consumed as public goods and services despite the fact that they can be produced or consumed as private goods.
- Price controls may take the form of either a price floor (a minimum price buyers are required to pay) or a price ceiling (a maximum price sellers are allowed to charge for a good or service).

- When prices of certain essential commodities rise excessively government may resort to controls in the form of price ceilings (also called maximum price) for making a resource or commodity available to all at reasonable prices.
- With the objective of ensuring stability in prices and distribution, governments often intervene in grain markets through building and maintenance of buffer stocks.
- Government failures where government intervention in the economy to correct a market failure creates inefficiency and leads to a misallocation of scarce resources occur very often.
- Government failure occurs when intervention is ineffective causing wastage of resources expended for the intervention and/or when intervention produces fresh and more serious problems.

TEST YOUR KNOWLEDGE

I Multiple Choice Type Questions

1. A thermal power plant uses coal and creates pollution in an otherwise unpolluted area. Which of the following would ensure that a socially optimal output of electricity is produced?
 - (a) Where marginal private cost equals marginal private benefit.
 - (b) Where marginal private cost equals marginal social benefit.
 - (c) Where marginal social cost equals marginal private benefit.
 - (d) Where marginal social cost equals marginal social benefit.
2. Which of the following statements is true?
 - I The market-based approaches to control externalities price mechanism
 - II. When externalities are present, the welfare loss would be eliminated
 - III. The key to internalizing an externality is to create the externality
 - (a) Both II and III
 - (b) I only
 - (c) II only
 - (d) Both I and III

3. Which of the following statements is false?
 - (a) Tradable permits provide incentive to innovate
 - (b) A subsidy on a good which has substantial positive externalities would reduce its cost and consequently price
 - (c) Substantial negative externalities are involved in the consumption of merit goods.
 - (d) Merit goods are likely to be under-produced and under consumed through the market mechanism
4. A Pigouvian subsidy
 - (a) cannot be present when externalities are present
 - (b) is a good solution for negative externality as prices will increase
 - (c) is not measurable in terms of money and therefore not practical
 - (d) may help production to be socially optimal when positive externalities are present
5. If governments make it compulsory to avail insurance protection, it is because
 - (a) Insurance companies need to be running profitably
 - (b) Insurance will generate moral hazard and adverse selection
 - (c) Insurance is a merit good and government wants people to consume it
 - (d) None of the above
6. If merit goods are provided free by the government
 - (a) The quantity demanded of merit good will be less than supply
 - (b) The quantity demanded of merit good will be equal to supply
 - (c) The quantity demanded of merit good is likely to be more than supply
 - (d) Any of the above can happen
7. The government should intervene in the marketplace to discourage the production and consumption of -----
 - (a) Goods which are not necessary

- (b) Demerit goods
 - (c) Goods having no externalities
 - (d) Goods which the markets produce less
8. If government produces and supplies a public good
- (a) It may correct market failure as there will be no externalities
 - (b) It may correct market failure caused by free riding
 - (c) It may correct market failure because people may free ride
 - (d) It may correct market failure because people may not free ride
9. Rules regarding product labelling
- (a) Seeks to correct market failure due to externalities
 - (b) Is a method of solving the problem of public good
 - (c) May help solve market failure due to information failure
 - (d) Reduce the problem of monopolies in the product market
10. Identify the incorrect statement
- (a) A minimum support price for agricultural goods is a market intervention method to guarantee steady and assured incomes to farmers.
 - (b) A price ceiling which is set below the prevailing market clearing price will generate excess demand over supply.
 - (c) Excludable public goods can be provided by government and the same can be financed through entry fees.
 - (d) The production and consumption of demerit goods are likely to be less than optimal under free markets

II Short Answer Type Questions

1. How do governments ensure that market power does not create distortions in the market?
2. Describe direct government actions to solve negative externalities.
3. What are the relative advantages of market based interventions?

4. Account for the difficulties in determination of level of taxes to solve the problems associated with market failure?
5. Why do governments provide public goods?
6. Define demerit good and point out its characteristics
7. What are the different options for providing merit goods to the public?
8. What are the consequences if demerit goods are left to free market?
9. Explain why governments impose taxes on goods and services?
10. Explain why governments provide subsidies? Illustrate a few examples of subsidies.
11. Explain why governments impose price ceilings?
12. How do you justify food price controls and rent controls?
13. Describe the effects of price ceilings with examples
14. Illustrate the impact of a price ceiling on market outcomes.
15. Explain why governments impose price floors?
16. Describe the concept of price floors with examples.
17. Explain the rationale for price support for agricultural products
18. Why do governments fix minimum wages?

III Long Answer Type Questions

1. Do you think government intervention in markets will help enhance social welfare? Substantiate your arguments
2. Explain the intervention strategies of government to bring about efficient market outcomes
3. Explain how government intervention can solve the problem of externalities?
4. Explain the market based methods for solving the problems of negative externalities?
5. Explain the effectiveness of regulatory mechanisms for mitigating market failure?
6. What is the rationale behind the argument that public goods should be provided by government?

7. Why do you think it is necessary for the government to manipulate the price and output of commodities and services? What consequences do you foresee in the absence of government intervention?

IV Application Oriented Questions

1. The pharmaceutical industry is involved in innovation, development, production, and marketing of medicines in India. Ensuring the availability of lifesaving drugs at reasonable prices is the duty of the government. The National Pharmaceutical Pricing Authority (NPPA) is the watchdog in India, which controls the prices of drugs. Government has to consider the interest of both the producers and the buyers.

Questions

- (i) Elucidate the market outcomes if matters relating to drugs are entirely left to the pharmaceutical industry.
 - (ii) Appraise the need for government action in the above case. Do you consider government action necessary in the case of medicines? Why?
 - (iii) What are the different policy options available to government to meet its public health objectives?
2. The draft of New Education Policy, 2016 proposes key changes in government's policy towards education. Explain the rationale for government action to streamline the education system in the country.
3. The Commission for Agricultural Costs and Prices (CACP) advises the government on minimum support prices of 23 agricultural commodities which comprise 7 cereals, 5 pulses, 7 oilseeds, and 4 commercial crops.
- (i) What is the underlying principle of minimum support prices? Do you think MSP is a form of market intervention? Why?
 - (ii) Why do you consider free markets undesirable for the above mentioned agricultural commodities?

ANSWERS/HINTS

I Multiple Choice Type Questions

1. (d) 2. (d) 3. (c) 4. (b) 5. (c) 6. (c)
 7. (b) 8. (c) 9. (c) 10. (d)

II Hints to short answer type questions

1. Market power is an important factor that contributes to inefficiency due to higher prices than competitive prices. Because of the social costs imposed by monopoly, governments intervene by establishing rules and regulations designed to promote competition and prohibit actions that are likely to restrain competition. Policy options also include price regulation in the form of setting maximum prices that firms can charge based on the firm's variable costs, past prices, and possible inflation and productivity growth. These are some methods by which the government ensures that market does not create distortions
2. Direct controls prohibit specific activities that explicitly create negative externalities or require that the negative externality be limited to a certain level, for instance limiting emissions.

Government initiatives towards negative externalities may include

1. Direct controls that openly regulate the actions of those involved in generating negative externalities, and
2. Market-based policies that would provide economic incentives so that the self-interest of the market participants would achieve the socially optimal solution.

Direct controls prohibit specific activities that explicitly create negative externalities or require that the negative externality be limited to a certain level, for instance limiting emissions. Production, advertising, use and sale of many commodities and services may be prohibited. Stringent rules may be established in respect of advertising, packaging and labeling etc. Governments may, through legislation, stipulate stringent standards such as environmental standards, emissions standards non adherence of which will invite monetary penalties or/and criminal liabilities. Another method is to create negative incentives through charging fees on activities creating negative externalities Governments may also form special bodies/ boards to specifically address the problem of negative externality. The market-based approaches (such as environmental taxes and cap-and-trade), operate through price mechanism to create an incentive for change.

3. The market-based approaches—environmental taxes and cap-and-trade – operate through price mechanism to create an incentive for change. In other words, they rely on economic incentives to accomplish environmental

goals at lesser costs. They make use of market forces to encourage consumers and producers to take negative externalities into account when planning their consumption and production. In other words, the polluters are forced to consider pollution as a private cost.

4. Pollution taxes are difficult to determine and administer due to difficulty to discover the right level of taxation, problems associated with inelastic nature of demand for the good and the problem of possible capital flight.
5. Direct provision of a public good by government can help overcome free-rider problem which leads to market failure. The non-rival nature of consumption provides a strong argument for the government rather than the market to provide and pay for public goods.
6. Demerit goods are goods which impose significant negative externalities on the society as a whole and are believed to be socially undesirable. The production and consumption of demerit goods are likely to be more than optimal under free markets. The government should therefore intervene in the marketplace to discourage their production and consumption.
7. Merit goods are likely to be under-produced and under consumed so that social welfare will not be maximized. The possible government responses to under-provision of merit goods are regulation, legislation, subsidies, direct government provision and a combination of government provision and market provision.
8. If demerits goods are left to the free market then the production and consumption of demerit goods are likely to be more than optimal under free markets.
9. Imposing unusually high taxes on producing or purchasing the goods and services making them very costly and unaffordable to many.
10. Subsidy is market-based policy and involves the government paying part of the cost to the firms in order to promote the production of goods having positive externalities. Or in other words ,A subsidy on a good which has substantial positive externalities would reduce its cost and consequently price, shift the supply curve to the right and increase its output. A higher output that would equate marginal social benefit and marginal social cost is socially optimal. There are many forms of subsidies given out by the government. Two of the most common types of individual subsidies are welfare payments and unemployment benefits. The objective of these types

of subsidies is to help people who are temporarily suffering economically. Other subsidies, such as subsidized interest rates on student loans, are given to encourage people to further their education.

11. When prices of certain essential commodities rise excessively government may resort to controls in the form of price ceilings (also called maximum price) for making a resource or commodity available to all at reasonable prices.
12. Food price control is justified as long as farmer gets profits and customer gets food stuff at lesser price without middle men. Rent control is justified as owner and tenant have correct price according to the locality. Both these need Governmental control.
13. Price ceilings prevent a price from rising above a certain level. When a price ceiling is set below the equilibrium price, quantity demanded will exceed quantity supplied, and excess demand or shortages will result. For example: maximum prices of food grains and essential items are set by government during times of scarcity. A price ceiling which is set below the prevailing market clearing price will generate excess demand over supply.
14. A price ceiling will only impact the market if the ceiling is set below the free- market equilibrium price. This is because a price ceiling above the equilibrium price will lead to the product being sold at the equilibrium price. If the ceiling is less than the economic price, the immediate result will be a supply shortage.
15. Price floor prevent a price from falling below a certain level. Price floors are used by the government to prevent prices from being too low. The most common price floor is the minimum wage-the minimum price that can be paid for labour.
16. Price floor is defined as an intervention to raise market prices if the government feels the price is too low. In this case, since the new price is higher, the producers benefit. For a price floor to be effective, the minimum price has to be higher than the equilibrium price. For example, many governments intervene by establishing price floors to ensure that farmers make enough money by guaranteeing a minimum price that their goods can be sold for. The most common example of a price floor is the minimum wage. This is the minimum price that employers can pay workers for their labour.

17. The rationale for price support for agricultural products is to guarantee steady and assured income to farmers. In case the market price falls below the MSP, then the guaranteed MSP will prevail.
18. The government fixes minimum wages because minimum wage is the lowest remuneration that employers can legally pay their workers—the price floor below which workers may not sell their labour.

III Hints to Long Answer Type Questions

- I. The length of the answer should relate to the marks allotted.
- II. The answer should be structured in three parts in the following style.
 - (a) Explain the economic fundamentals underlying the action/issue by integrating the course material in innovative ways; not necessarily confined to one unit. This part provides an opportunity for students to explain their understanding of the underlying theory. The examiner may easily discern the level of cognition of the student. This should be a compulsory component with a reasonably high proportion of marks earmarked.
 - (b) Analyse the issue at hand (given the framework and tools) and explain the policy position by applying the fundamentals as explained in (a) above.
 - (c) Substantiate with illustrations from current economic scenario

IV Application Oriented Questions

1. (i) Essential commodity – Left to market there may be inefficiency and possible market power – likely to charge higher prices than competitive prices- Price controls are put in place by governments to influence the outcomes of a market- Policy options for limiting market power also include price regulation in the form of setting maximum prices that firms can charge- In some cases, the government's regulatory agency determines an acceptable rate-of return - setting price-caps based on the firm's variable costs, past prices, and possible inflation and productivity growth regulation price, so as to ensure a competitive or fair rate of return. Legislation, regulation in terms of price controls, selection and listing of items to be included in price control, care to be taken not to damage the incentives of producers. Illustrate with figures

- (ii) Merit good- merit goods are rival, excludable, limited in supply, rejectable by those unwilling to pay, and involve positive marginal cost for supplying to extra users. Positive externalities- Left to the market, only private benefits and private costs would be reflected in the price paid by consumers. This means, compared to what is socially desirable, people would consume inadequate quantities.
 - (iii) Merit goods can be provided through the market, but are likely to be under produced and under-consumed through the market mechanism so that social welfare will not be maximized - This is a strong case for government intervention. Government intervention in the form of direct provision, regulation, licensing and controls. Illustrate with figure: Market outcome for merit goods.
2. Merit good (Refer hints to question 1 above) Illustrate with figure: Market outcome for merit goods.
3. (i) Influence the outcomes of a market on grounds of fairness and equity- strong political demand for government intervention - Price intervention for ensuring stable prices and stable incomes to producers - market-based incentives to ensure steady output, outcomes of higher than equilibrium price. Illustrate with figures
- (ii) Markets for primary products are subject to extreme as well as unpredictable fluctuations in price – Income elasticity of demand for primary products is less than one – need to guarantee steady and assured incomes to farmers - Minimum Support Price (MSP) programme as well as procurement by government agencies at the set support prices - Illustrate with figure : Market outcome of minimum support price- When price floors are set above market clearing price, suppliers are encouraged to over-supply and there would be an excess of supply over demand – limitations -possible government failure