UNIT2

Market Failure

PAPER 8B

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1. Market Failure

Market failure is a general term describing situations in which market outcomes are inefficient. Market left to itself leads to under/over utilization of resources.

Market failures provide a rationale for government intervention.

Demand Side Market Failure: Consumers are not willing to pay proportionate price for the utilization of good/services. Pure air, Tree Plantation, Waste disposal

Supply Side Market failure: Producers are not willing to pay the external cost of production. Polythene bags, disposal of chemical waste in rivers

2. Sources of Market Failure

a. Market Power: Dominance of market share and high price of goods /services at less than the level of optimization . Non-existence of Market despite need for the product or service

For the purposes of competition policy, the most relevant of these is the existence of **market power, or the absence of perfect competition**.

Market failure occurs when the conditions for perfect competition are not met. **If the market fails, then government intervention designed to correct the market failure may bring benefits to society.** However, government intervention may fail to secure these benefits, it can make matters worse and it can be the reason why there is market failure. This is known as **government failure.**

b. Externalities

When individuals or firms impose **costs or benefits on others for which the market assigns no price**, then an externality exists.

Negative externalities arise when an individual or firm does not bear the costs of the harm it imposes (pollution, for example).

Positive externalities arise when an individual or firm provides benefits for which it is not compensated.

Negative and positive externalities

Producer Negative Externality Social Cost> Private Cost

In the case of pollution—the traditional example of a negative externality—a polluter makes decisions based only on the direct cost of and profit opportunity from production and **does not consider the indirect costs to those harmed by the pollution.** The indirect costs include decreased quality of life, say in the case of a home owner near a smokestack; higher health care costs; and forgone production opportunities, for example, when pollution harms activities such as tourism. Since the indirect costs are not borne by the producer, and therefore not passed on to the end user of the goods produced by the polluter, **the social or total costs of production are larger than the private costs.** **Example: Rapid Urbanization**

Producer Positive Externality

There are also positive externalities, and here the issue is the difference between private and social gains. For example, **research and development (R&D) activities are widely considered to have positive effects beyond those enjoyed by the producer that funded the R&D—normally, the company that pays for the research.** This is because R&D adds to the general body of knowledge, which contributes to other discoveries and developments. However, the private returns of a firm selling products based on its own R&D typically do not include the returns of others who benefited indirectly. With positive externalities, private returns are smaller than social returns. **Example ISRO**

c. Goods not supplied by markets

Finally, there are cases in **which goods or services are not supplied by markets (or are supplied in insufficient quantities).** This may arise because of the **nature of the product, such as goods which have zero or low marginal costs** and which it is **difficult to exclude people from using (called public goods; for example, a lighthouse or national defence)**. It may also arise because of the nature of some markets, where **risk is present (called incomplete markets; for example, certain types of medical insurance)**.

We know that the market mechanism will lead to the socially optimal outcome only under very specific conditions. However, it is highly unlikely that these conditions will be fully satisfied. The existence of perfect competition in reality as it is defined in textbooks is highly unlikely. For example, we require that prices will result from the realization of all possible markets working and existing. **This is only likely to occur when a complete and effective system of property rights exists, including property rights to environmental goods such as clean air.**

Lack of optimal outcome leads to market failure and this can, deliberately or unintentionally, bring about undesirable consequences.

Let us work through the argument for a negative externality.

In this case, **the marginal private cost (MPC) is less than the marginal social cost (MSC).**

The marginal private cost represents the short-run market supply curve.

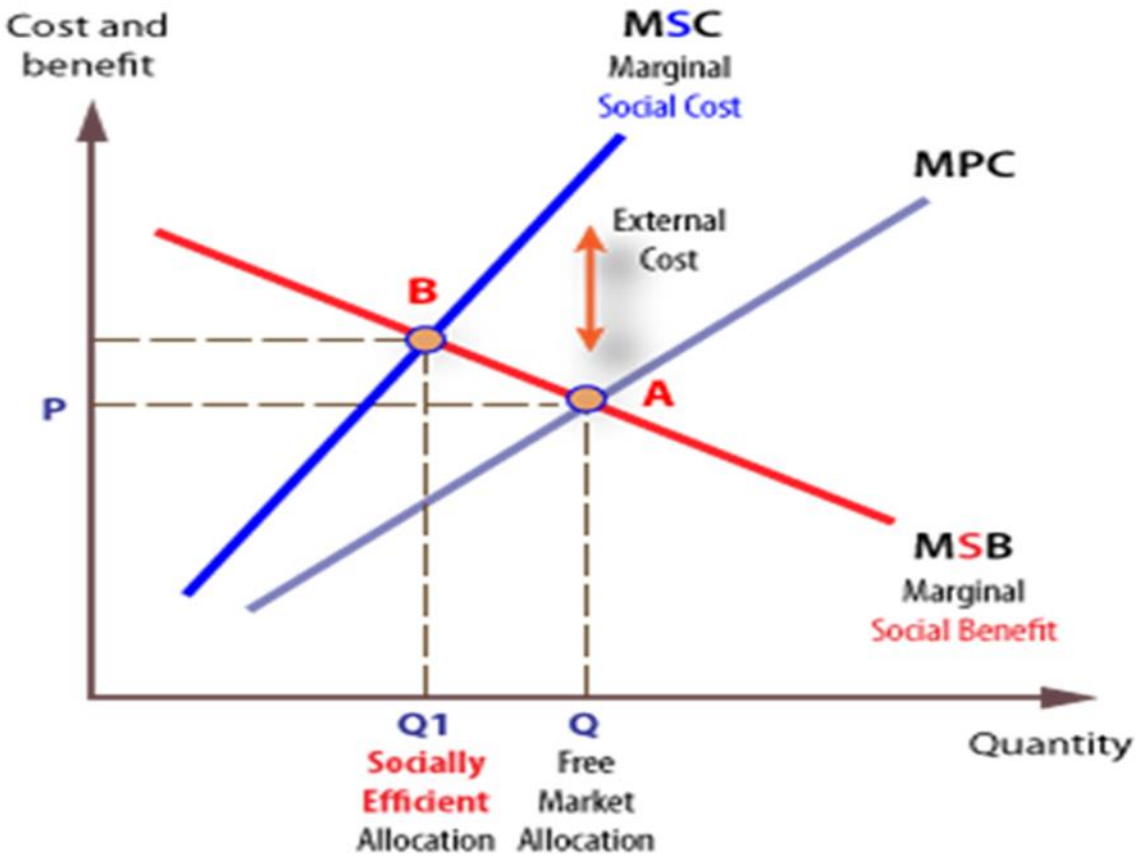
MSC - MPC = Marginal damages (MD) or Loss of social welfare

MDs are the amount of the negative externality

MD increases with increase in output

Marginal damages are damages being inflicted on society as a result of the private producer not taking account of the costs that result from production, such as air or water pollution.

Ex: Manufacturers of low quality polythene bags



A shows the equilibrium position with a negative externality. Price is *P* and quantity supplied is *Q*.

B shows the socially optimal outcome, where price is *P**1and quantity supplied is *Q*1.

Hence, with a negative externality, too much of the externality-producing good is supplied at too low a price (relative to the optimum).

This is an example of market failure. It results from the absence of property rights and a market for the marginal damages produced by this activity.

Externalities: When Prices Do Not Capture All Costs

Consumption, production, and investment decisions of individuals, households, and firms often affect people not directly involved in the transactions. Sometimes these indirect effects are tiny. But when they are large they can become problematic—what economists call externalities. Externalities are among the main reasons governments intervene in the economic sphere.

Most externalities fall into the category of so-called technical **externalities; that is, the indirect effects have an impact on the consumption and production opportunities of others, but the price of the product does not take those externalities into account. As a result, there are differences between private returns or costs and the returns or costs to society as a whole.**

When there are differences between private and social costs or private and social returns, the main problem is that market outcomes may not be efficient.

Wellbeing of the people = Social Benefits > Social Cost

To promote the well-being 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 households and firms 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.

Overproduction or underproduction reflects less-than-optimal market outcomes in terms of a society's overall condition (what economists call the "welfare perspective").

Consider again the example of pollution. Social costs grow with the level of pollution, which increases in tandem with production levels, so goods with negative externalities are overproduced when only private costs are considered in decisions and not costs incurred by others. To minimize social costs would lead to lower production levels. Similarly, from a societal perspective, maximization of private instead of social returns leads to underproduction of the good or service with positive externalities.

Negative consumption externality:

When an individual's consumption reduces the well-being of others who are not compensated by the individual it leads to Negative Consumption externality.

Private marginal cost (PMB): The direct benefit to consumers of consuming an additional unit of a good by the consumer. Social marginal cost (SMC): The private marginal benefit to consumers plus any costs associated with the consumption of the good that are imposed on others

Example: Using a car and emitting carbon contributing to global warming

Positive consumption externality: When an individual's consumption increases the well-being of others but the individual is not compensated by those others. Example: Beautiful private garden that passers-by enjoy seeing.

Taxation and externalities

The inefficiencies associated with technical externalities constitute a form of "market failure." Private market–based decision making fails to yield efficient outcomes from a general welfare perspective. These economists recommended **government intervention to correct for the effects of externalities**. In The Economics of Welfare, British economist Arthur Pigou suggested that governments tax polluters an amount equivalent to the cost of the harm to others. **Such a tax would yield the market outcome that would have prevailed with adequate internalization of all costs by polluters. By the same logic, governments should subsidize those who generate positive externalities, in the amount that others benefit.**

People can resolve the problems through mutually beneficial transactions. For example, a landlord and a polluter could enter into a contract in which the landlord agrees to pay the polluter a certain amount of money in exchange for a specific reduction in the amount of pollution. Such contractual bargaining can be mutually beneficial. Once the building is less exposed to pollution, the landlord can raise rents. As long as the increase in rents is greater than the payment to the polluter, the outcome is beneficial for the landlord. Similarly, as long as the payment exceeds the loss in profit from lower pollution (lower production), the polluter is better off as well.

The possibility of overcoming the inefficiencies from externalities through bargaining among affected parties was first discussed by Ronald Coase (1960)—among the work that earned him a Nobel Prize in economics in 1991. For bargaining solutions to be feasible, property rights must be well defined, bargaining transaction costs must be low, and there must be no uncertainty or asymmetric information, when one side knows more than the other about the transaction.

Against this backdrop, optimal government intervention might be the establishment of institutional frameworks that allow for proper bargaining among parties involved in externalities. **Property rights—**

specifically intellectual property rights, such as patents—allow a firm to earn most if not all the returns from its R&D. But it is easier to assign property rights for innovations and inventions than for basic or general research. Property rights for such research are more difficult to define and government subsidies typically are needed to ensure a sufficient amount of basic research.

Public goods

Problems in defining property rights are often a fundamental obstacle to market-based, self-correcting solutions, because the indirect effects of production or consumption activity can affect so-called public goods, which are a special kind of externality.

Public goods a

1. non excludable—whoever produces or maintains the public good, **even at a cost, cannot prevent other people from enjoying its benefits. One cannot deny other's consumption**

2. **non- rival**—consumption by one individual **does not reduce the opportunity for others to consume it**. No reduction in quality and quantity of the public good.

3. Indivisibility –cannot be consumed as an individual unit

4. free rider problem – The free rider problem is the burden on a shared resource that is created by its use or overuse by people who aren't paying their fair share for it or aren't paying anything at all. Public Parks

- **When everyone can consume a resource in unlimited amounts.**
- **When no one can limit anyone else's consumption.**
- **When someone has to produce and maintain the resource.**
- **That is, it's not a natural lake, it's a swimming pool, and someone had to undertake its construction and maintenance.**

No business would voluntarily produce goods or services under these conditions. When the free rider problem looms, businesses back away. Either the shared resource will not be provided, or a public agency must provide it using taxpayer funds.

Common Access Resources

Earth's ecosystem, River, forest, clean water, biodiversity, and a sustainable stock of fish in the open sea are rivals and non-excludable goods. **They are goods, produced by nature and available to everybody. They are subject to no well-defined property rights. As a result, households and firms do not place enough value on these public goods, and efficient market outcomes through bargaining typically are not feasible. In other words, an environmental issue often faces a collective action problem and misuse of resources and reduces availability for future generations.**

The tragedy of the commons is an economics problem in which every individual has an incentive to consume a resource, but at the expense of every other individual -- with no way to exclude anyone from consuming. Initially it was formulated by asking what would happen if every shepherd, acting in their own self-interest, allowed their flock to graze on the common field. If everybody does act in their apparent own best interest, it results in harmful over-consumption (all the grass is eaten, to the detriment of everyone).Cutting of trees for residential construction to accommodate growing urbanization.

- **The tragedy of the commons is a problem in economics that occurs when individuals neglect the well-being of society in the pursuit of personal gain.**
- **This leads to over-consumption and ultimately depletion of the common resource, to everybody's detriment.**
- **For a tragedy of the commons to occur a resource must be scarce, rivalrous in consumption, and non-excludable.**
- **Solutions to the tragedy of the commons include the imposition of private property rights, government regulation, or the development of a collective action arrangement.**

BASIS	PUBLIC GOODS	PRIVATE GOODS
Meaning	Public goods are the ones which are provided by the nature or the government for free use by the public.	Private goods are the ones which are manufactured and sold by the private companies to satisfy the consumer needs and wants.
Provider	Nature or government	Manufacturers i.e. entrepreneurs
Price	No Direct payment	Direct Payment
Consumer equality	Rich and poor are treated equally	Preference to those who can higher price
Availability	Readily available to all	Reduces with each consumption
Quality	Remains constant	Varies with ability to buy
Decision	Social choice	Consumer's decision
Objective	Overall growth and development	Profit earning
Traded in Free Market	No	Yes
Opportunity Cost	No	Yes
Free riders problem	Yes	No
Rivalry	Non-rival no opportunity cost	Rival
Excludability	Non-excludable	Excludable

BASIS	PUBLIC GOODS	PRIVATE GOODS
Examples	Police service, fire brigade, national defense, public transport, roads, dams and river	Clothes, cosmetics, footwear, cars, electronic products and food

PURE and IMPURE PUBLIC GOOD

Pure public goods are **non-rivalrous in consumption, meaning that one person's consumption of any of these goods does not interfere with any other person's consumption of the same good**. **The clarity of your radio reception, for example, is independent of the number of other listeners.**

Impure public goods are said to be **partially rivalrous** or **congestible**.

Impure public goods also differ from pure public goods in that they are often excludable. Access to many recreational facilities is controlled, and toll roads and toll bridges are not unfamiliar. Fire and police protection are more problematic. Controlling access to these services is more difficult, and even if it were feasible, it would raise serious ethical questions.

The possibility of controlling access to impure public goods has two important implications. First, provision by private firms or by governments on a "fee for service" basis becomes possible, because free riding can be eliminated.

Quasi-public goods have characteristics of both private and public goods, including partial excludability, partial rivalry, partial diminishability and partial rejectability. For example, private enterprise could provide some bridges, roads and tunnels if a charging system could be applied which solves the free rider problem. However, it is unlikely that all an economy's (households and firm's) need for transport and infrastructure could be met this way. Indeed, toll charge systems could be regarded as inefficient in that traffic slows down to pay at the toll booth, and traffic builds up causing congestion and increased **external costs**. However, the introduction of new technology, such as 'smarter' payments systems and number-plate recognition technology means that the free rider problem can be reduced or

eliminated and the price mechanism can operate. Hence, over time, technology can convert public goods to quasi-public goods, and eventually to private goods.

Global Public Good

Today, the most pressing and complex externality problem is **greenhouse gas (GHG) emissions**. The atmospheric accumulation of greenhouse gases from human activity has been identified as a major cause of global warming. Barring policies to curb GHG emissions, scientists expect this problem to grow and eventually lead to climate change and its accompanying costs, including damage to economic activity from the destruction of capital (for example, along coastal areas) and lower agricultural productivity. Externalities come into play, because **the costs and risks from climate change are borne by the world at large, whereas there are few mechanisms to compel those who benefit from GHG-emitting activity to internalize these costs and risks.**

The atmosphere, in fact, is a global public good, with benefits that accrue to all, making private bargaining solutions unfeasible. Identifying and agreeing on policies for internalization of the social costs of GHG emissions at the global level are extremely difficult, given the cost to some individuals and firms and the difficulties of global enforcement of such policies.

Public policy makers employ two types of remedies to resolve the problems associated with negative externalities:

1) Price policy: corrective tax or subsidy equal to marginal damage per unit

2) Quantity regulation: government forces firms to produce the socially efficient quantity

Although there is room for market-based corrective solutions, government intervention is often required to ensure that benefits and costs are fully internalized.

- We *learn to live* with externalities, or:
- Government *intervenes* on our behalf through taxes or direct controls and regulations, such as:

1. **Taxing** polluters, such as carbon taxes, or taxes on plastic bags.
2. Subsidising households or firms to be non-polluters, such as giving grants for home insulation improvements.

3. Selling **permits to pollute**, which may become traded by the polluters.

4. Forcing polluters to pay compensation to those who suffer, such as making noise polluting airports pay for double-glazing.

5. **Road pricing** schemes, such as the Electronic Road Pricing (ERP) system in Singapore, which is a pay-as-you-go, card-based, road-pricing scheme.

6. Providing more information to consumers and producers, such as requiring that tickets to travel on polluting forms of transport, especially air travel, should contain information on how much CO_2 pollution will be created from each journey.

7. The adoption of policies emerging from research by **behavioural economists** – often shortened to 'nudge' theory. This type of approach looks at influencing choices individuals make by nudging them towards more effective **decison making**.

https://www.thehindubusinessline.com/opinion/why-the-public-healthcare-system-is-seeing-a-market-failure/article31850960.ece

Demerit goods

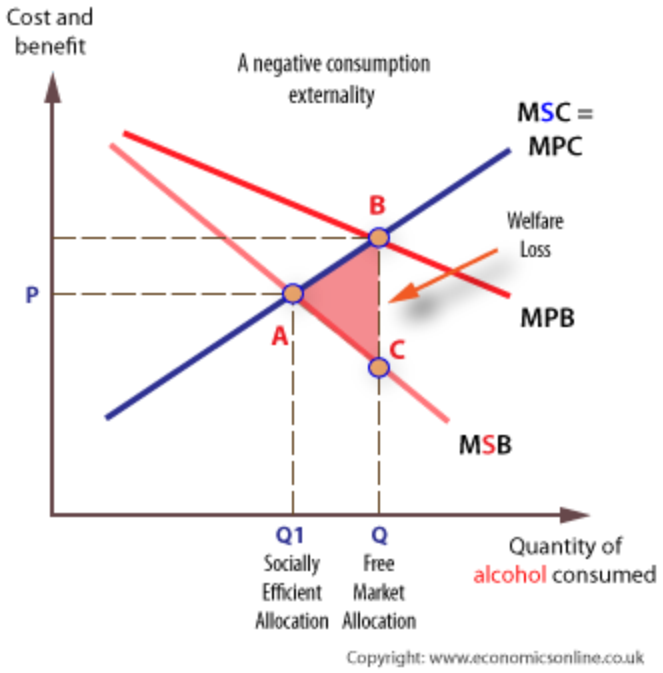
In contrast to a **merit good**, consuming a demerit good creates negative spillover effects. For example, if a driver consumes excessive **alcohol** and then crashes into an innocent driver causing damage to their vehicle, a negative consumption externality has arisen.

Society has suffered because the actual benefit of drinking by some has reduced the benefits possible (from driving) to others.

This reduces the Marginal Social Benefit (MSB) by the extent of the negative effect on others, so that the socially efficient consumption of alcohol is less than the free market level of consumption.

Similarly, cigarette smoking by some individuals in public places will reduce the benefits to others in the form of passive smoking. This may also lead to higher taxes for all taxpayers which the government pay needs to pay for increased healthcare in the future.

Diagram for demerit good



The negative consumption externality created by some consumers reduces the private benefit of others. Hence, the Social Marginal Benefit (SMB) which represents all marginal benefits is reduced when demerit goods are consumed, and the socially efficient quantity will be less than the market quantity, which only takes into account the Marginal Private Costs and Benefits.

The welfare loss associated with 'over-consumption' of a demerit good is the excess of Social Marginal Cost above Social Marginal Benefit, which is the quantity Q1 to Q in the above diagram, and the welfare area ABC.

Incomplete Information and Market Failure

1. Lack of adequate information between buyers and sellers results in market failure.

Asymmetric Information

Asymmetric information means that **one party has more or better information than the other when making decisions and transactions.** The **imperfect information causes an imbalance of power**. For example, landlord knows more about its property than tenants, a borrower knows more about his/her credit worthiness than the lender. Accurate information is essential for sound economic decisions. When a market experiences an imbalance it can lead to market failure.

Adverse Selection

Adverse selection is a term used in economics that refers to a process in which undesired results occur when buyers and sellers have access to different/imperfect information. The uneven knowledge causes the price and quantity of goods or services in a market to shift. This results in "bad" products or services being selected.

The Market for Lemons (Akerlof, 1970)

1.1 The fundamental problem:

1. Goods of quality exist in the marketplace.

2. Sellers of goods know more than potential buyers about the quality of goods that they are selling.

3. Akerlof's critical insight: Potential buyers know that sellers know more about the quality of goods than they do.

It is possible that there will be no trade whatsoever for a given good, even though:

1. At any given price p0, there are traders willing to sell their products.

2. At price p0, there are buyers willing to pay strictly above p0 for the good that traders would like to sell.

Akerlof (1970) was the first economist to analyze this paradox rigorously. His paper was nominally about the market for used cars.

It's always been folk wisdom that it's a bad idea to buy used cars—that 'you are buying someone else's problem.' But why should this be true?

If used cars are just like new cars only a few years older, why should someone else's used car be any more problematic than your new car after it ages a few years?

A simple example: The market for used cars

Setting – There are 2 types of new cars available at dealerships:

Good cars and lemons (which break down often).

The Dealers do not publicly distinguish good cars versus lemons; they sell what's on the lot at the sticker price.

Buyers cannot tell apart good cars and lemons. But they know that some fractions of cars are lemons.

After buyers have owned the car for any period of time, they also can tell whether or not they have bought a lemon.

Assume that good cars are worth = $20, 000 to buyers and lemons are worth = $10, 000 to buyers.

For simplicity (and without loss of generality), assume that cars do not deteriorate and that buyers are risk neutral.

Since dealers sell all cars at the same price, buyers are willing to pay the expected value of a new car.

Now, consider the used car market.

Assume that used cars sell at 20 percent below their new value.

So good used cars and lemons sell for = $16, 000 and = $8, 000.

Since cars don't deteriorate, used car buyers will be willing to pay = $20, 000 and = $10, 000 respectively for used good cars and lemons.

There the buyer and seller together gain a surplus of $4, 000 or $2, 000 from each sale.

(Which actors actually get the surplus may depend on bargaining power, but it isn't important for this model.)

Selling either a good car or a lemon is potentially Pareto improving.

• Recall that buyers cannot distinguish good cars from lemons, while owners of used cars know which is which. Sellers will only part with their cars if offered a price that is greater than or equal to their reservation price.

Consequently, good used cars will not be sold in equilibrium, despite the fact that they are worth more to buyers than to sellers. Thus, only lemons sell in equilibrium.

Bottom line: If the share of lemons in the overall car population is high enough, the bad cars will drive out the good ones. Although buyers would be willing to pay $20, 000 for a good used car, their inability to distinguish good cars from lemons means that they will not be willing to pay more than $15, 000 for any used car.

Akerlof's model shows that adverse selection can potentially 'shut down' a market, such as the market for used cars. The key insight of Akerlof's paper is that in markets with private information, the quality of goods sold in the market is endogenous: it depends on the market price.

When sellers have private information about products' intrinsic worth, they will only bring good products to market if prices are high.

• Buyers understand this, and so must adjust the price they are willing to pay to reflect the quality of the goods they expect to buy at that price.

"Selection in Insurance Markets: Theory and Empirics in Pictures," by Liran Einav are geared towards the health insurance market, but they apply equally well to any market setting where adverse selection is present.

Moral Hazards and Market Failure

In addition to adverse selection, moral hazards are also a result of asymmetric information. A moral hazard is a situation where a party will take risks because the cost that could incur will not be felt by the party taking the risk. A moral hazard can occur when the actions of one party may change to the detriment of another after a financial transaction. In relation to asymmetric information, moral hazard may occur if one party is insulated from risk and has more information about its actions and intentions than the party paying for the negative consequences of the risk. For example, moral hazards occur in employment relationships involving employees and management. When a firm cannot observe all of the actions of employees and managers there is the chance that careless and selfish decision making will occur.