

Market Failures

Market failure: Occurs when resources are misallocated or allocated inefficiently.

The existence of externalities, public goods, and imperfect information are examples of market failure.

Externality

When one person's actions imposes a cost or benefit on the well-being of a bystander.

Externalities usually result in market failure.



Externalities can be:

1) **Positive:** an external benefit is imposed on someone. (examples: gardens, restored historic buildings, research)

2) **Negative:** an external cost is imposed on someone. (examples: exhaust from autos, barking dogs, noise from airplanes)



MARGINAL SOCIAL COST AND MARGINAL-COST PRICING

Marginal Social Cost (*MSC*) The total cost to society of producing an additional unit of a good or service.

MSC is equal to the sum of the marginal costs of producing the product and the correctly measured damage costs involved in the process of production

Marginal Damage Cost (MDC)

If producing product X pollutes the water in a river, MDC is the additional cost imposed by the added pollution that results from increasing output by one unit of X per period.

What happens when the firms' marginal cost of production is not equal to the marginal cost to society?

Or if the marginal benefit to consumers is not equal to the marginal benefit to society?

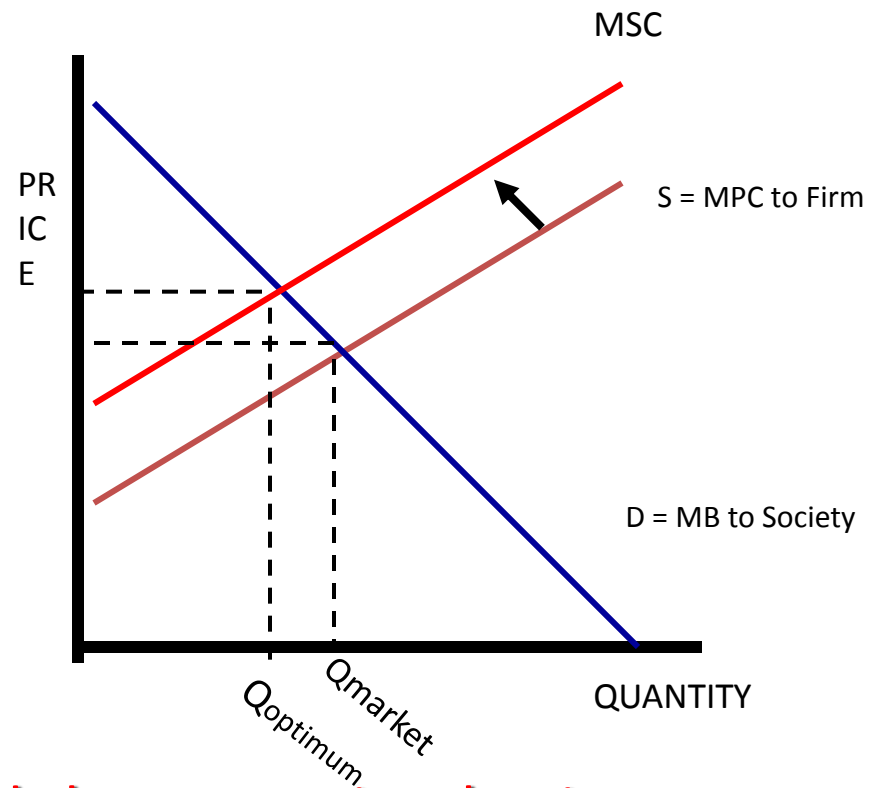
NEGATIVE EXTERNALITY IN PRODUCTION:

Example: Pollution

Because of the externality, the cost to society is larger than the cost to producers.

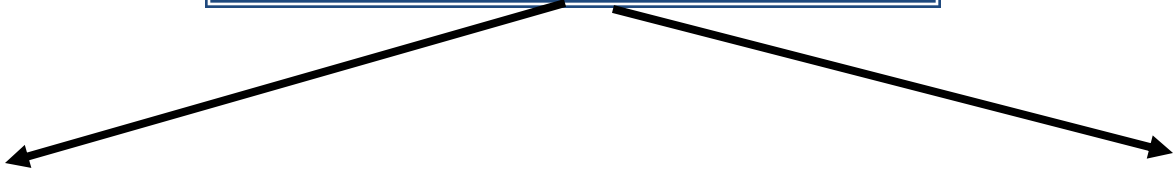
MC is the private cost to the firm.

Marginal social cost (MSC) is cost to society = MC + externality.



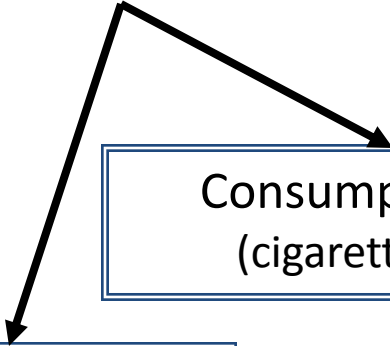
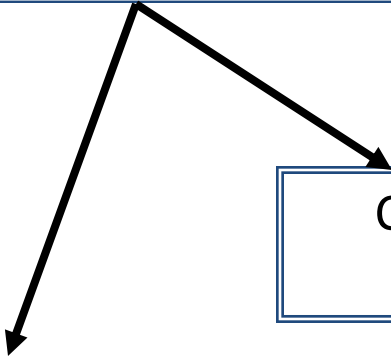
The market overproduces and charges a price that is too low.

Externalities



Positive (+benefit)

Negative (+cost)



Production
(honey)

Consumption
(education)

Production
(pollution)

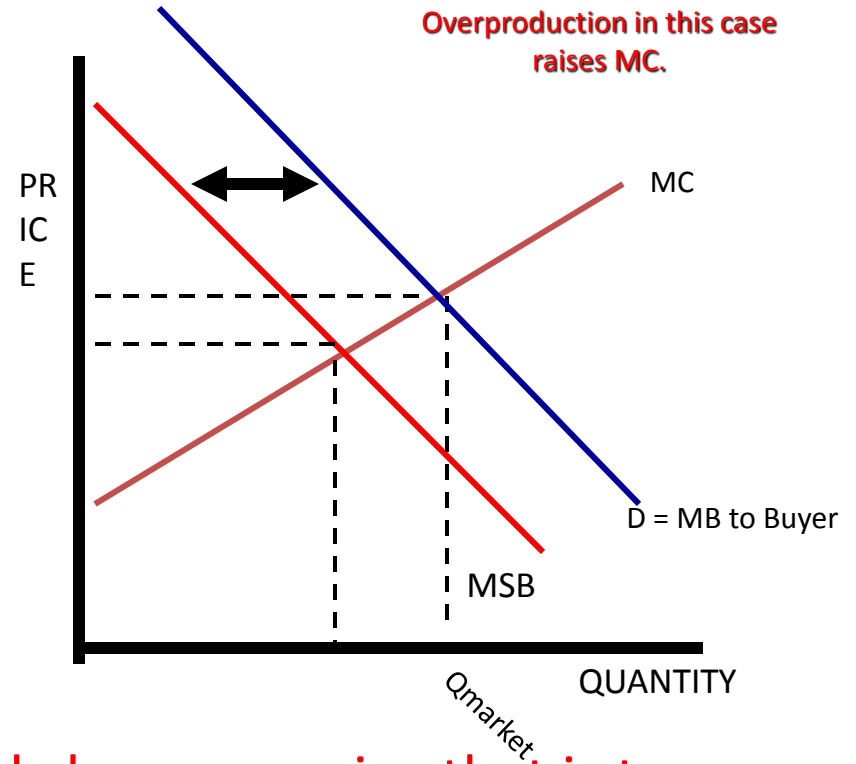
Consumption
(cigarettes)

NEGATIVE EXTERNALITY IN CONSUMPTION:

Example: Cigarettes

D gives the private benefit in consumption.

Marginal social benefit (MSB) =
D + externality.



The market overproduces and charges a price that is too high.

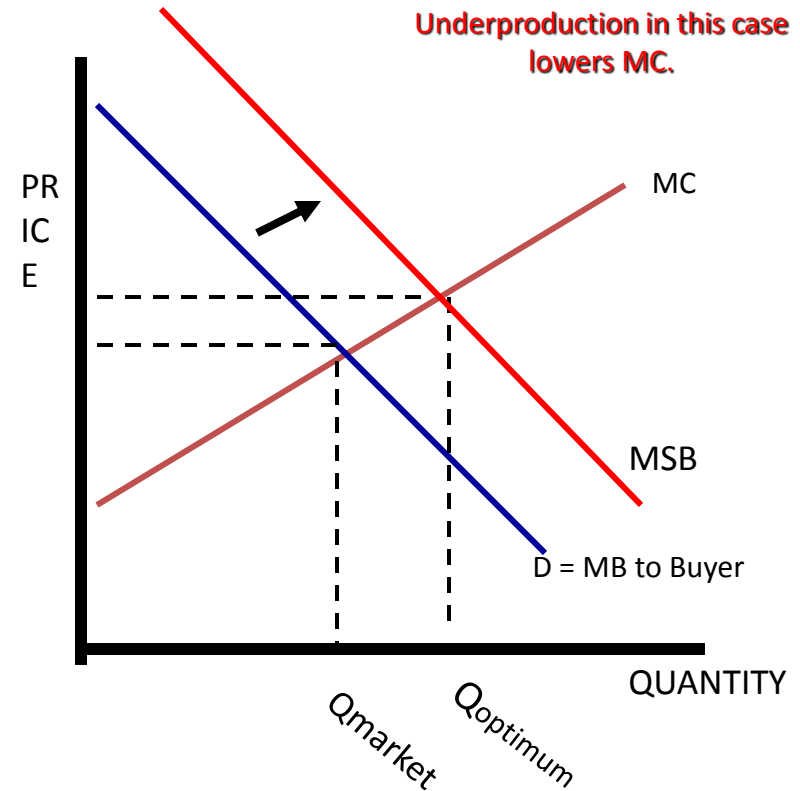
POSITIVE EXTERNALITY IN CONSUMPTION:

Examples: Education, Charities

The social value of education is greater than the private value.

D gives the private benefit in consumption.

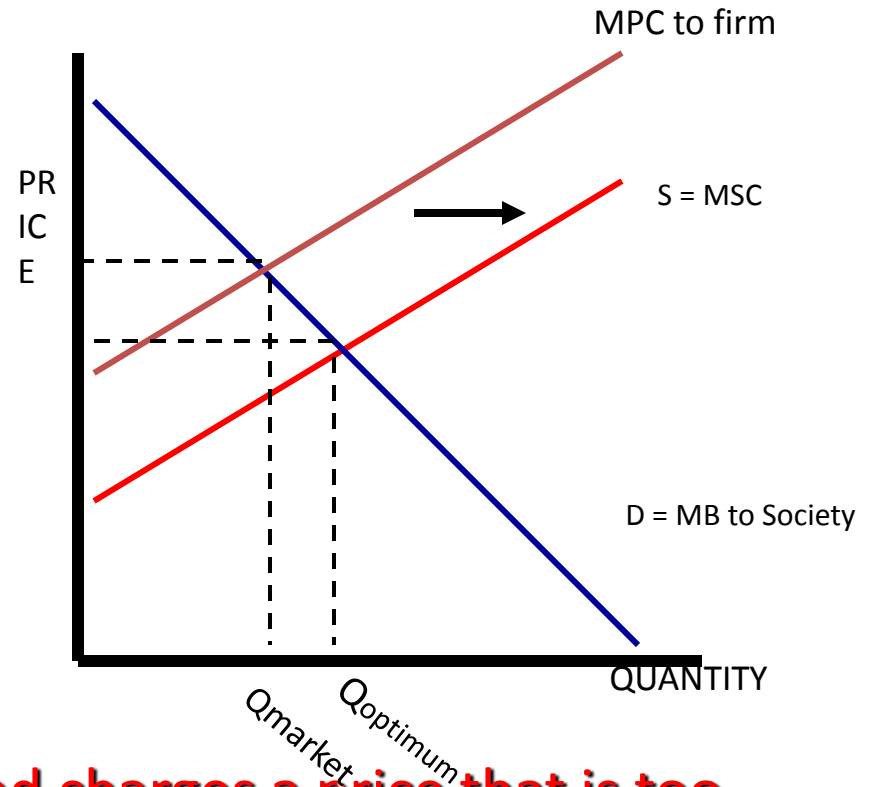
Marginal social benefit (MSB) = D + externality.



The market underproduces and charges a price that is too low.

POSITIVE EXTERNALITY IN PRODUCTION:

Example: Honey



MC is the private cost to the firm.

Marginal social cost (MSC) is cost to society = MC + externality.

The market underproduces and charges a price that is too high.

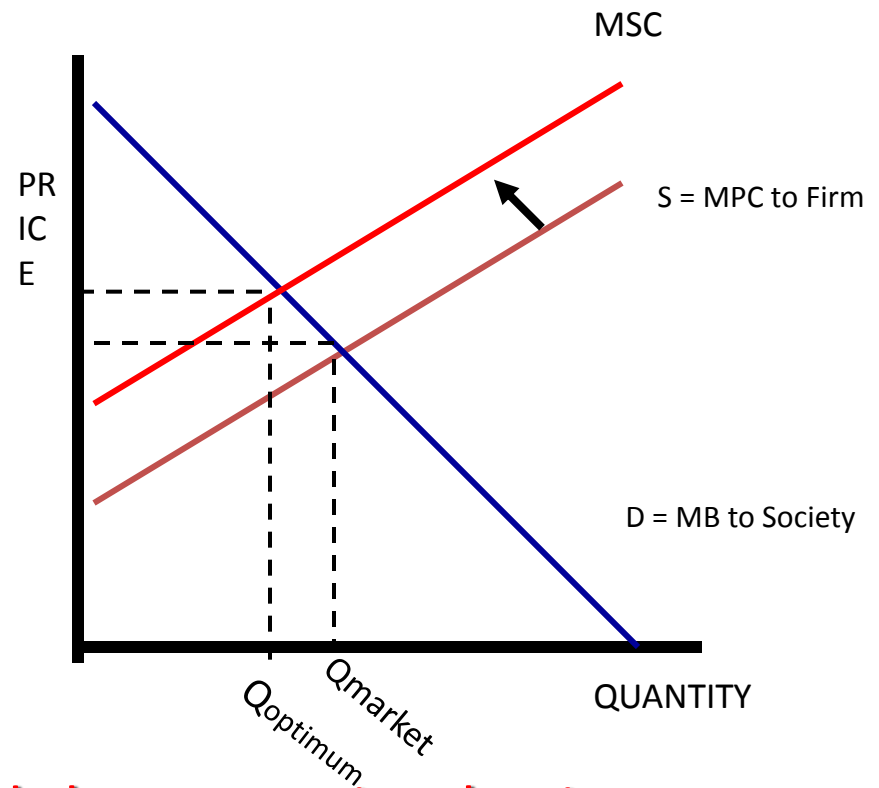
NEGATIVE EXTERNALITY IN PRODUCTION:

Example: Pollution

Because of the externality, the cost to society is larger than the cost to producers.

MC is the private cost to the firm.

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The market overproduces and charges a price that is too low.

SAMPLE AP TEST QUESTION

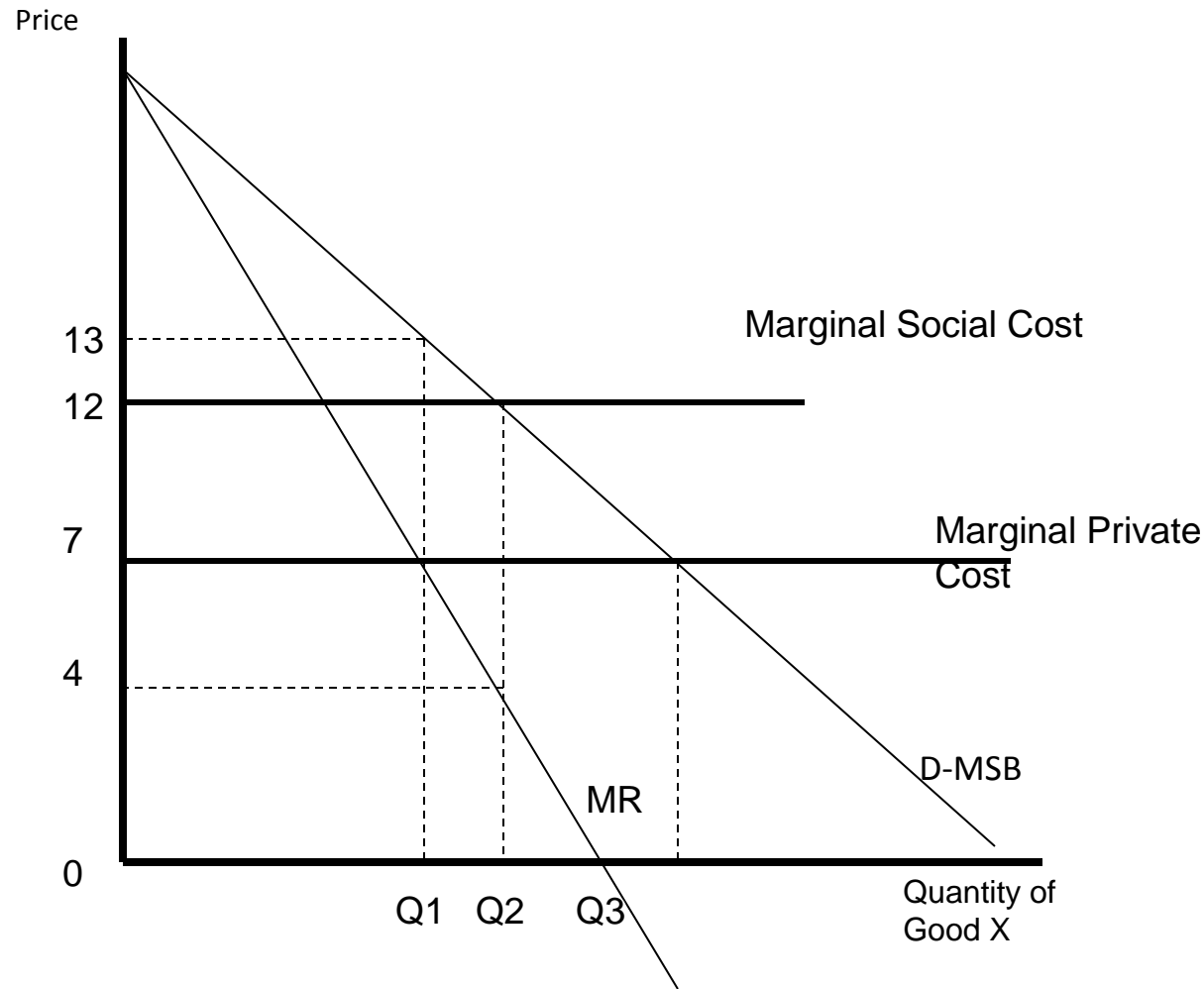
The production of Good X creates an externality.

Is this a negative or positive externality?

Negative

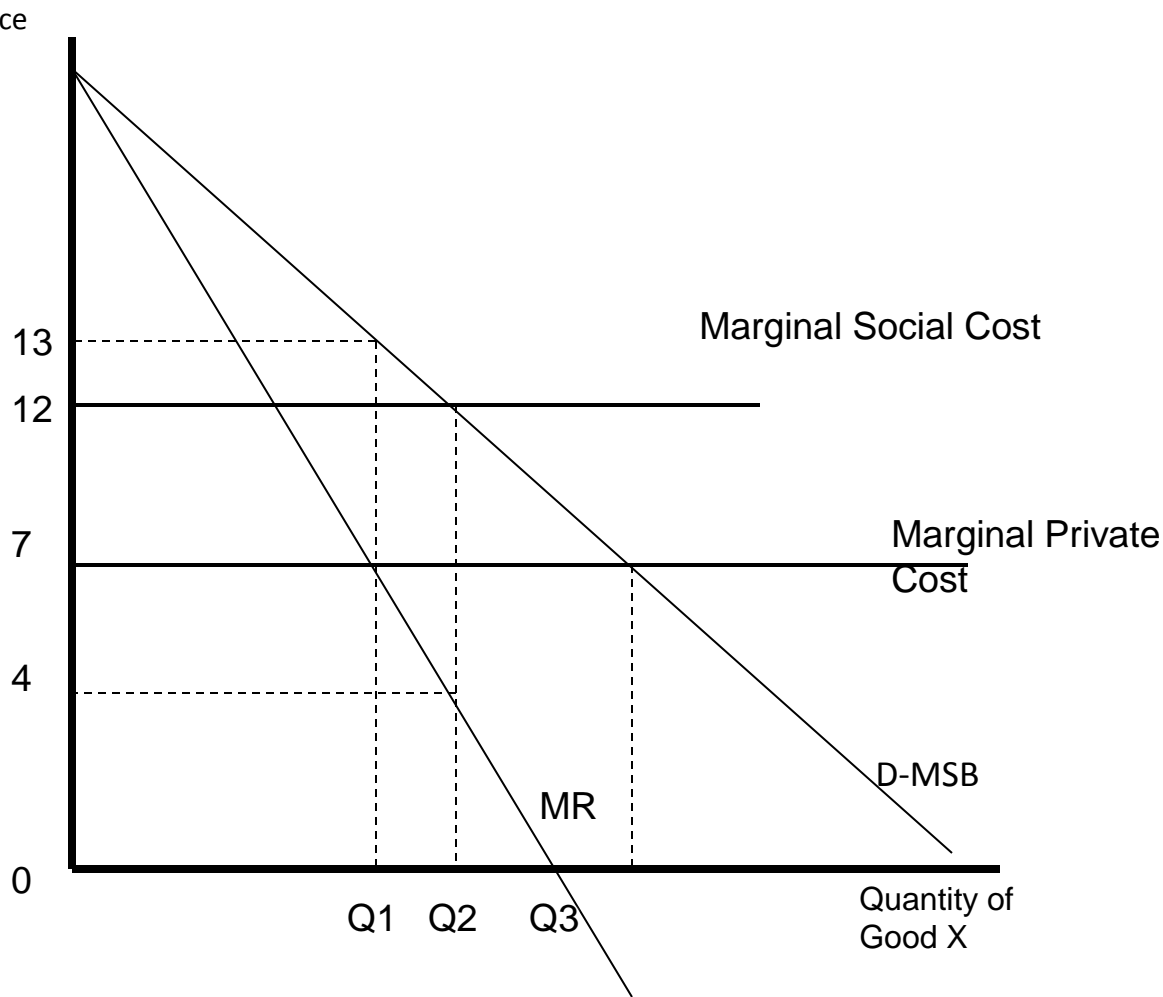
Why?

$$MSC > MPC$$



The production of Good X creates an externality.

Identify the socially optimum output.



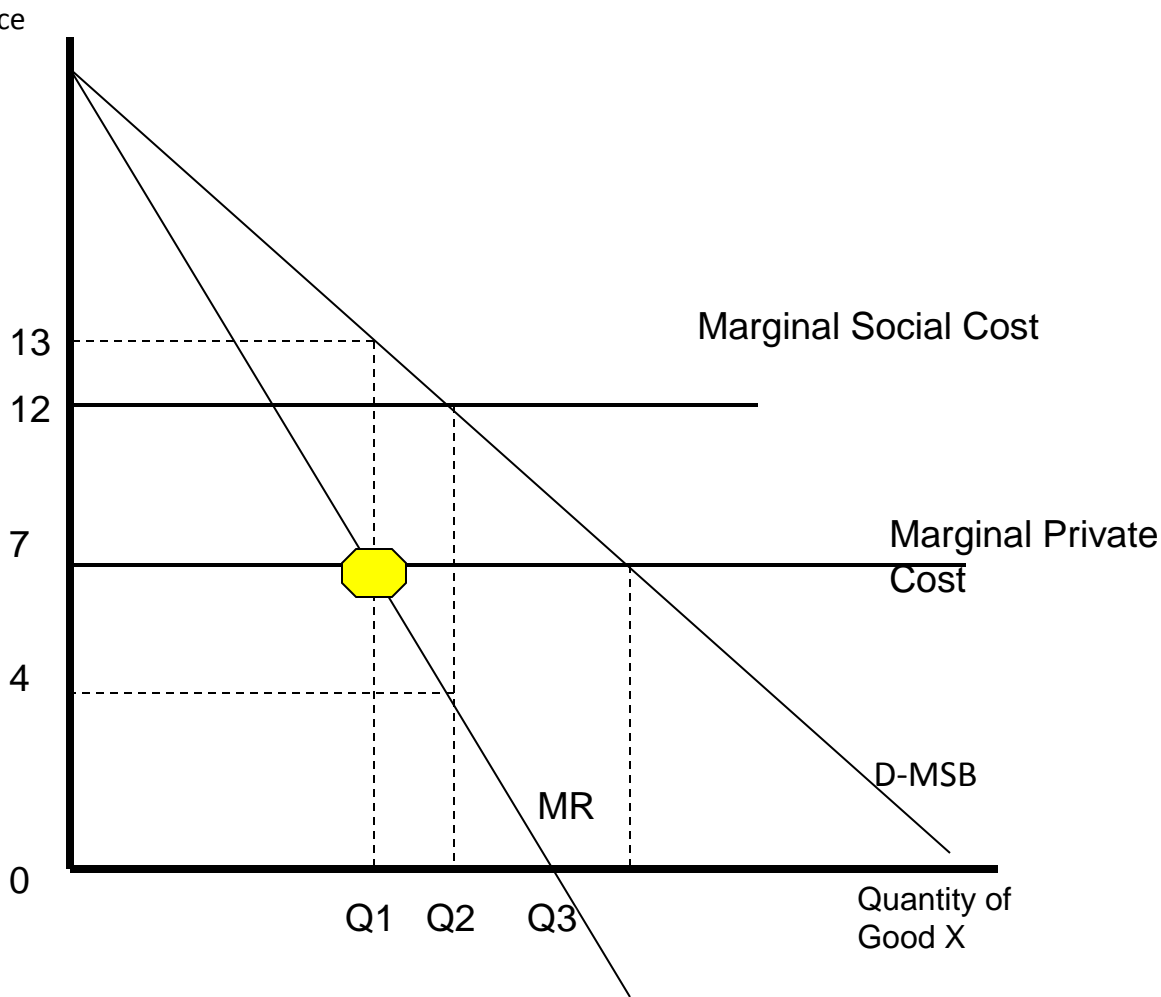
Q2

Why?

MSC=MSB

Suppose that good X is produced by a profit-maximizing monopoly.

Identify the unregulated firm's output.



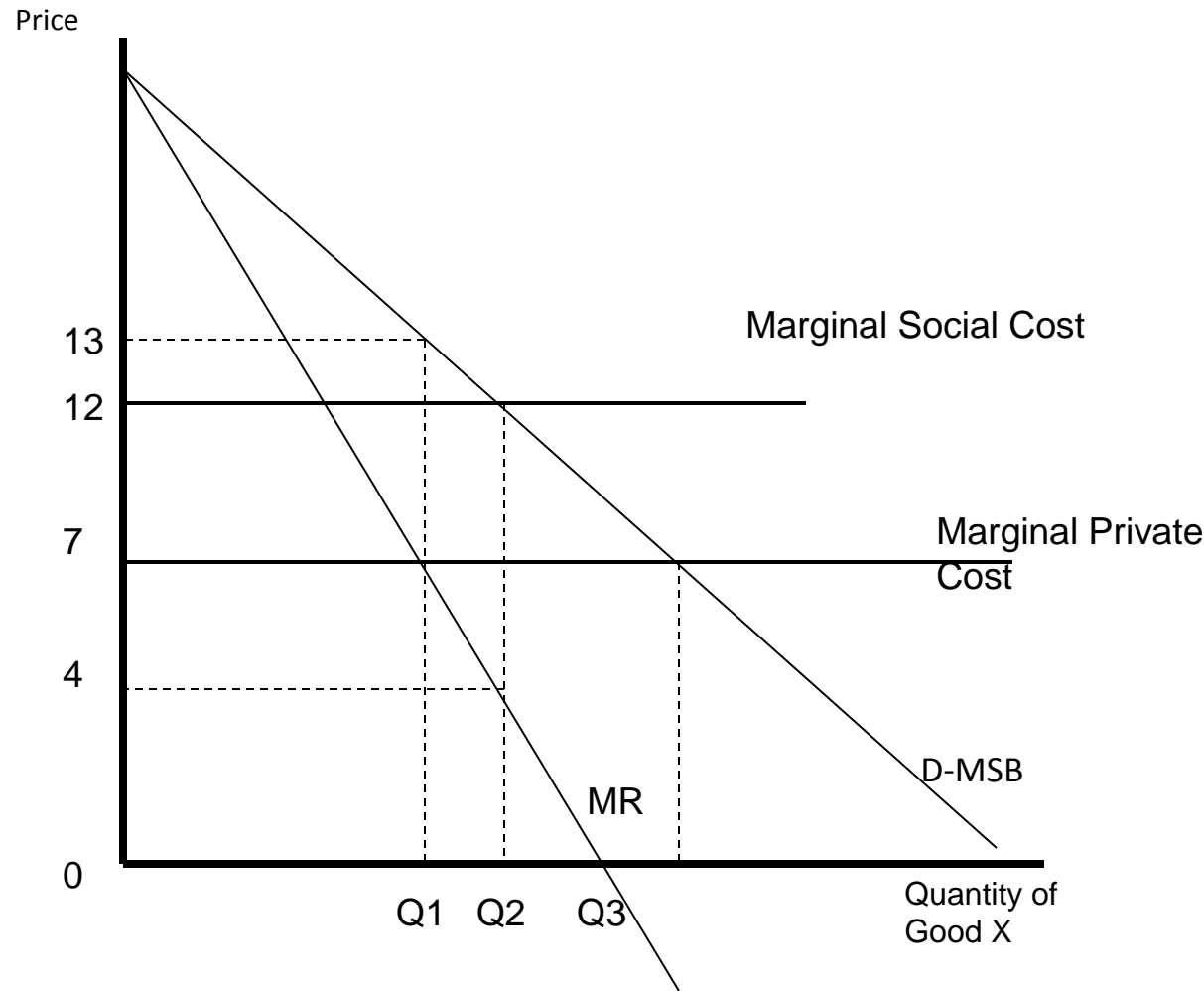
Q1

Why?

At Q1, MPC = MR

Suppose that good X is produced by a profit-maximizing monopoly.

To produce socially optimum output, should the government tax or subsidize the firm?



subsidize

How much will it be?

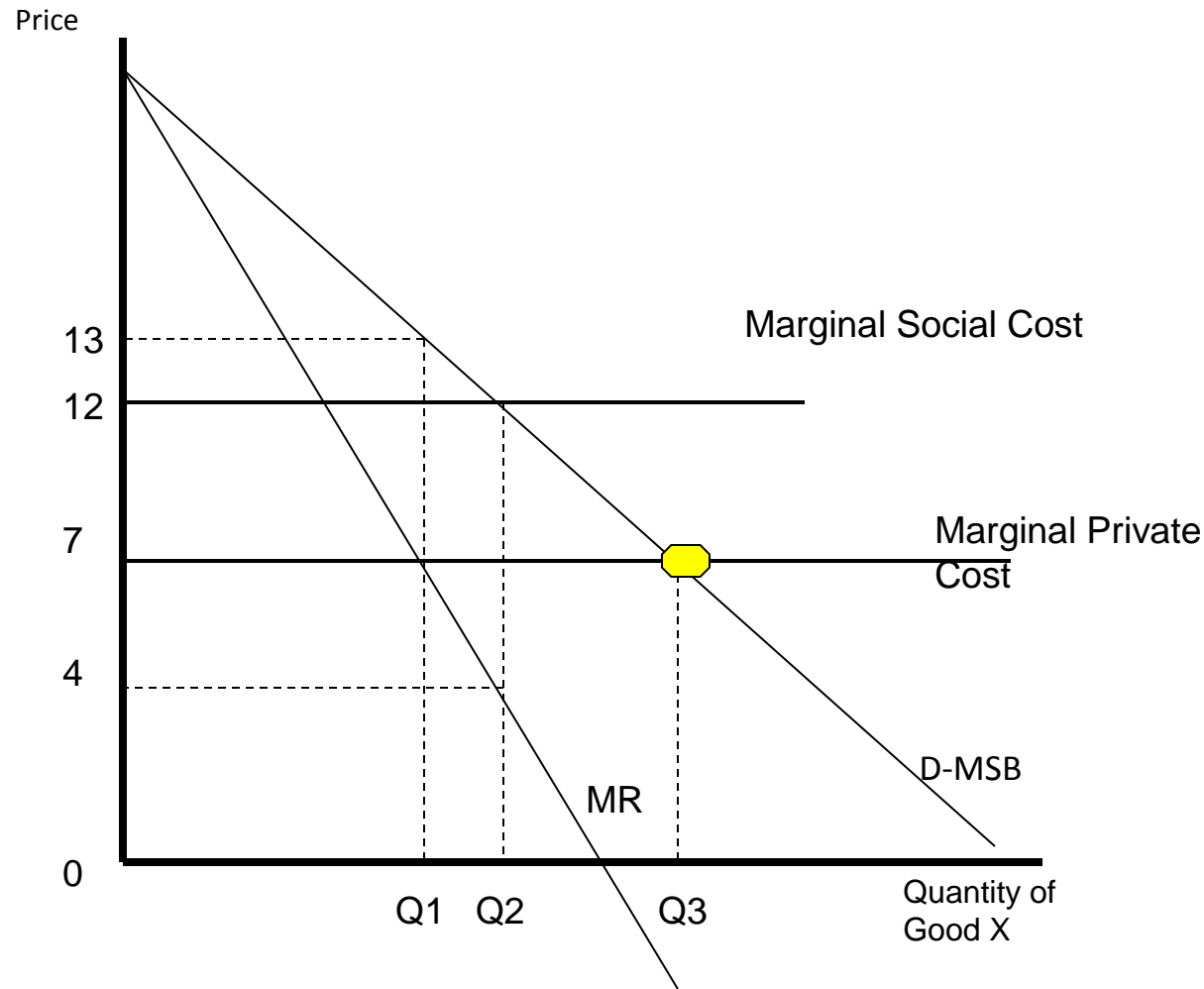
\$3

Why?

Optimum Quantity at $Q = MR$

Suppose that good X is produced in a perfectly competitive industry.

Identify equilibrium output in the absence of regulation.



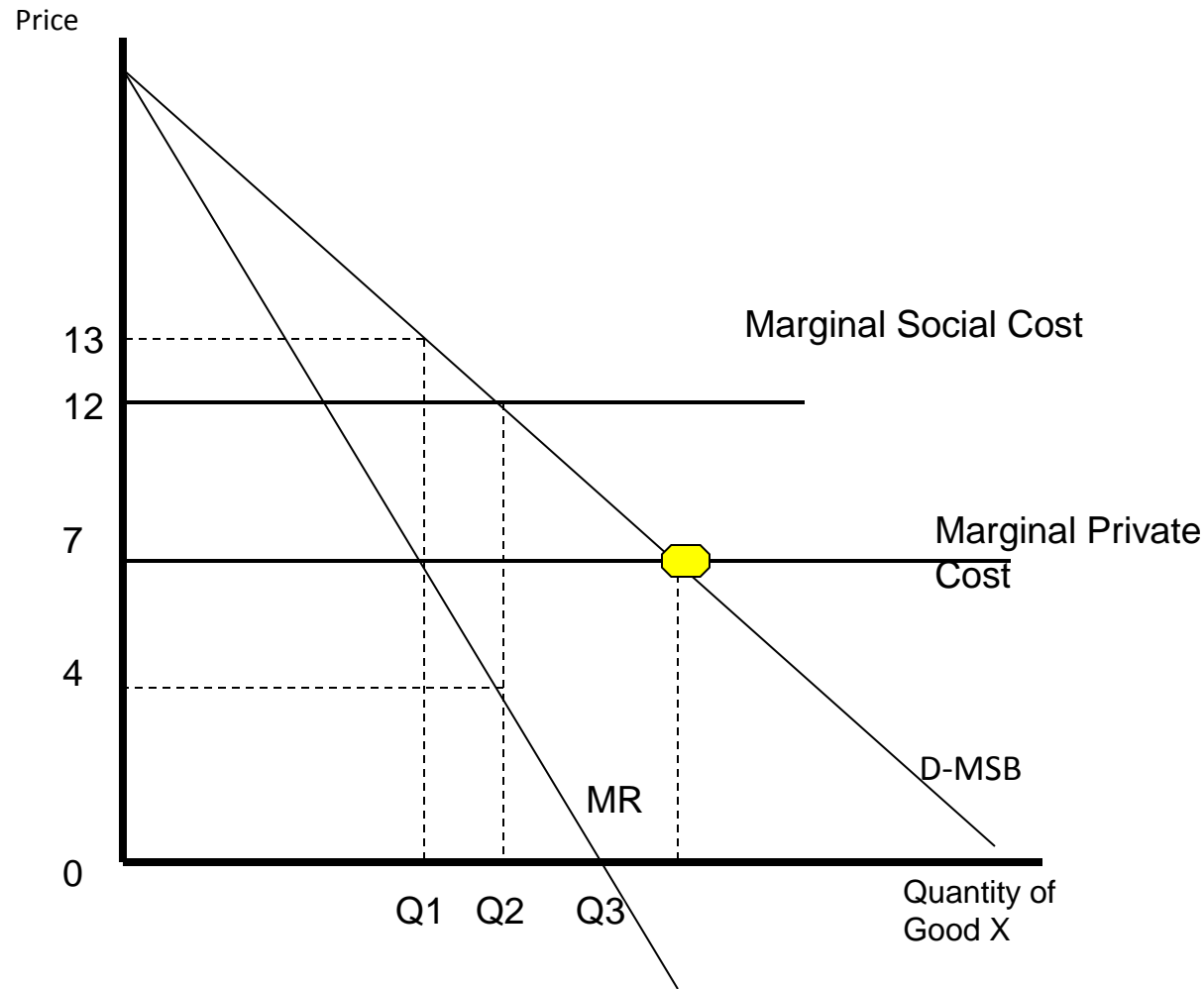
Q3

Why?

D=MPC or MSB=MPC

Suppose that good X is produced in a perfectly competitive industry.

To produce at socially optimum output, should the government tax or subsidize?



Tax

How much?

\$5

Five approaches have been taken to solving the problem of externalities:

- (1) Government-imposed taxes and subsidies,
- (2) Private bargaining and negotiation,
- (3) Legal rules and procedures,
- (4) Sale or auctioning of rights to impose externalities, and
- (5) Direct government regulation.

Suppose that two firms are awarded permits and have met the government standard.

Firm 1 then decides it wants to increase its emissions by 100 tons and firm 2 agrees to reduce its emissions by 100 tons if firm 1 pays it \$5 million.

Should the government allow two factories to make this deal?

If the EPA allows the firms to make this deal, it will have created a new scarce resource: pollution permits.

A market to trade these permits will develop and that market will be governed by the forces of supply and demand.

CO₂ emission permits have been traded since 1995 on the Chicago Exchange.

Carbon emissions trading has been steadily increasing in recent years. According to the World Bank's Carbon Finance Unit, 374 million metric tonnes of carbon dioxide equivalent (tCO₂e) were exchanged through projects in 2005, a 240% increase relative to 2004 (110 mtCO₂e), which was itself a 41% increase relative to 2003 (78 mtCO₂e).

Public goods (social or collective goods)

Goods that are non-rival in consumption and/or their benefits are non-excludable.

Non-rival in consumption A characteristic of public goods: One person's enjoyment of the benefits of a public good does not interfere with another's consumption of it.

Non-excludable A characteristic of most public goods: Once a good is produced, no one can be excluded from enjoying its benefits.

Problems associated with Public goods

- **free-rider problem** A problem intrinsic to public goods: Because people can enjoy the benefits of public goods whether they pay for them or not, they are usually unwilling to pay for them.
- **drop-in-the-bucket problem** A problem intrinsic to public goods: The good or service is usually so costly that its provision generally does not depend on whether or not any single person pays.

Tiebout hypothesis An efficient mix of public goods is produced when local land/housing prices and taxes come to reflect consumer preferences just as they do in the market for private goods.

ADVERSE SELECTION: ASYMMETRIC INFORMATION

adverse selection Can occur when a buyer or seller enters into an exchange with another party who has more information.

- **moral hazard** Arises when one party to a contract passes the cost of its behavior on to the other party to the contract.
- **THE VOTING PARADOX**
- **impossibility theorem** A proposition demonstrated by Kenneth Arrow showing that no system of aggregating individual preferences into social decisions will always yield consistent, nonarbitrary results.