

# Understanding externalities

In this centrespread, David Horner outlines the different types of externalities

## What are externalities?

Externalities are costs or benefits arising from a transaction that affects third parties — people or groups not involved in the original transaction. Externalities:

- are either negative or positive for those affected
- arise out of production or consumption transactions
- are normally ignored by those involved in the transaction
- lead to welfare losses, due to the output level in the market being sub-optimal

## Externality diagrams

For all externality diagrams, there will be two equilibriums drawn — a socially optimal output level and the 'free market' or actual output level.

The labelling of the curves may vary between different examination boards — here we have used *MSC*, *MPC*, *MSB* and *MPB* but check this with your own exam board.

- MSC* shows the marginal social cost of production — the full cost to society of each additional unit of output
- MPC* shows the marginal private cost of production — the cost of producing an additional unit of output paid by the business
- MSB* shows the marginal social benefit of consumption — the full benefit to society arising from consumption of an additional unit of output
- MPB* shows the marginal private benefit of consumption — the benefit of consuming one additional unit of output experienced by the individual consumer

Individual businesses and consumers base decisions on their private costs and private benefits only, whereas the allocatively efficient level of production or consumption takes into account the full 'social' costs and benefits of production and consumption.

## Positive externalities in consumption

Positive consumption externalities create external benefits for others and society beyond those involved in the original consumption transaction.

- On Figure 2, the actual level of consumption in the market ( $Q_1$ ) is lower than the socially optimal output level ( $Q_2$ ). This underconsumption is a market failure.
- The welfare loss created by the underconsumption is shown as the shaded area on the figure.
- Merit goods are an example of products with positive consumption externalities.
- Others may benefit indirectly from products with positive consumption externalities, such as those attending university, who may get higher-paying jobs, which generates more tax revenue for governments to spend.
- Examples of products with positive consumption externalities include healthcare, education, pensions, healthy food.

## Negative externalities in consumption

A consumption externality arises when a person's consumption affects others not involved in the original transaction.

- Negative consumption externalities are where the effects of consumption on others are damaging or harmful.
- In Figure 1, the actual level of consumption in the market ( $Q_1$ ) is greater than the socially optimal output level ( $Q_2$ ). This overconsumption is a market failure.

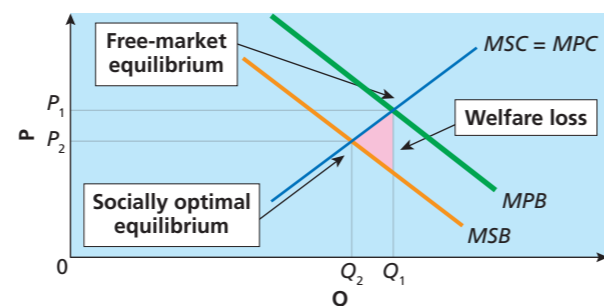


Figure 1 Negative externalities in consumption

- The welfare loss created by the overconsumption is shown as the shaded area on the figure.
- Demerit goods are an example of products with negative consumption externalities.
- Others may be harmed directly by the consumption of a product (e.g. passive smoking).
- Increased government spending may be needed to deal with the effects of the negative consumption externality, such as increased spending on law enforcement to deal with antisocial behaviour caused by excessive alcohol consumption.
- Examples of products with negative consumption externalities include junk food, alcohol, cigarettes, illegal drugs.

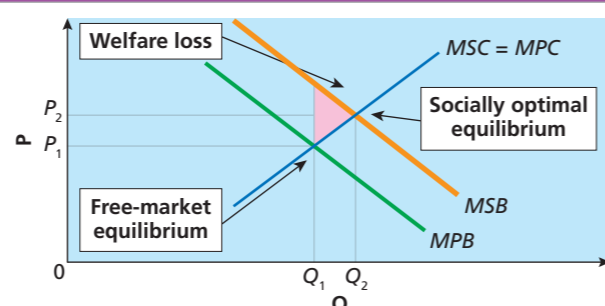


Figure 2 Positive externalities in consumption

## Positive externalities in production

Positive production externalities are beneficial effects on others arising out of production of output.

- Businesses only gain from the private benefits (the revenue) of producing output and cannot enjoy the external benefits their production creates.
- By not gaining the external benefits of production, businesses underproduce products with positive production externalities.
- On Figure 3, the actual level of output ( $Q_1$ ) is lower than the socially optimal output level ( $Q_2$ ). This underproduction is a market failure.

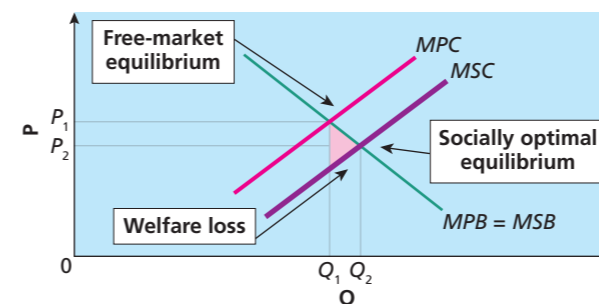


Figure 3 Positive externalities in production

- The welfare loss created by the underproduction is shown as the shaded area on the figure.
- Examples of situations generating positive production externalities include advances in technology and improved transport links.

## Negative externalities in production

Negative production externalities exist when production of output creates external costs for societies that the original business does not directly pay for.

- Businesses only pay for the private costs of production and do not pay directly for the external costs this production creates.
- By not paying for the external costs of production, businesses will overproduce products with negative production externalities.
- On Figure 4, the actual level of output is higher than the socially optimal output level. This overproduction is a market failure.

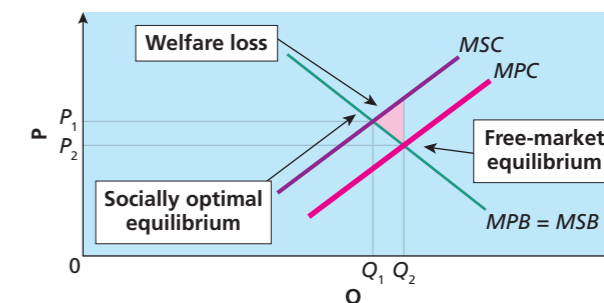


Figure 4 Negative externalities in production

- The welfare loss created by the overproduction is shown as the shaded area on the figure.
- Examples of negative production externalities include air pollution, water pollution, noise pollution and visual blight.

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## Externalities in the real world

Production and consumption can create both positive and negative externalities at the same time — e.g. a hospital may generate lots of positive externalities for society but also generates some negative externalities, such as traffic congestion around hospitals.

- Measuring the size of any externality is difficult in reality — those shown on the figures here are based on estimates, which may be unreliable.
- All the figures here show a constant unit size of each externality, as shown by 'private' and 'social' curves running parallel to one another. This is highly unlikely in reality.
- The size of the externality may increase faster than the increase in output, which would be shown as divergent 'private' and 'social' curves.
- Although most agree on the existence of externalities (e.g. dangers of passive smoking, the costs of obesity), there is an element of subjectivity when estimating the size of the externalities, which may lead to disagreements over the significance and importance of each of these market failures.