Positive Externalities

Microeconomics
[Market Failure Causes]

<u>**Definition**</u> of Externalities

Occurs when consuming/producing a good/service has an impact on <u>**3rd parties**</u> who are **not directly involved** in the consumption/production of the good/service.

Positive Externalities

- 3rd party benefits.
- A divergence is caused between Social Marginal Benefit (SMB) and Private Marginal Benefit (PMB).
- Positive externalities can be brought about by consumers and/or producers.

<u>EXPLAINING</u> a market failure (e.g Education)

<u>1. Define Market Failure and Positive Externalities</u>

- Market failure is occurs as a result of **<u>economic inefficiency</u>** in a market, where in this case market failure is brought about by **positive externalities**.
- Positive Externalities occur when **consuming/producing** a good/service has a **positive impact on 3rd parties** who are **<u>not directly involved</u>** in the consumption/production of the good/service.

EXPLAINING a market failure (e.g Education)

2. Explain Marginal Private Benefit (MPB) and Cost (MPC)

- The Marginal Private Benefit (MPB) to a consumer of education is the **additional knowledge** gained from education, while the Marginal Private Cost (MPC) is the additional costs required to consume an **additional unit of education** such as through school fees.
- In the free market, consumers consume up to where MPB = MPC so as to **maximise their own welfare**.

<u>**EXPLAINING**</u> a market failure (e.g Education)

<u>3. Explain Marginal External Cost (MEC), State Assumptions</u>

- Assuming **no negative externalities**, Marginal External Costs (MEC) = 0 and thus MSC = MPC since MSC = MPC + MEC.

<u>4. Explain in detail the positive externalities</u>

- Positive Externalities arise as the consumption of education results in **spillover benefits** on third parties such as family members through increased awareness and understanding of the issues around them, allowing them to make better choices.

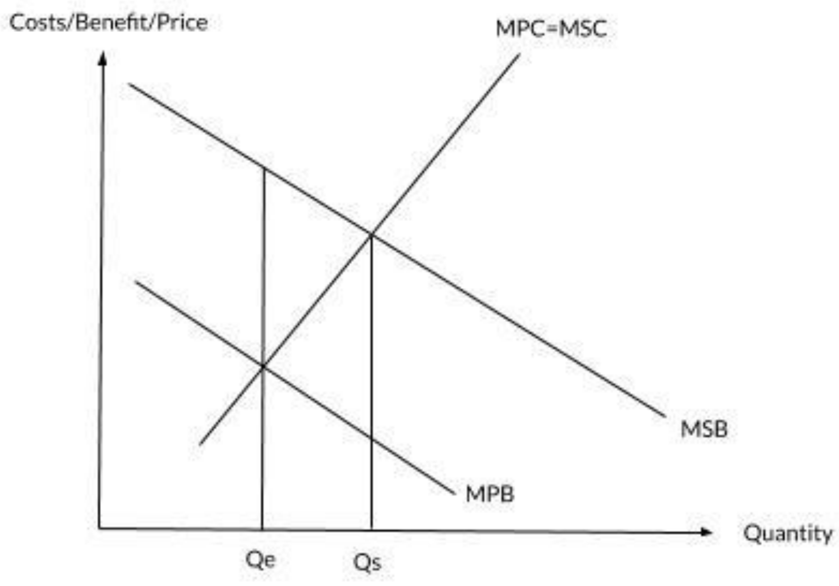
EXPLAINING a market failure (e.g Education)

5. Explain divergence between MSB and MPB known as MEB

- Hence, due to the positive externalities, there will be a divergence of MEB between MSB and MPB, since MSB = MPB + MEB.

EXPLAINING a market failure (e.g Education)

6. Draw the diagram



EXPLAINING a market failure (e.g Education)

7. Explain the societal optimal level and deadweight loss

- The socially optimal level, Qs occurs where MSC = MSB, where an additional cost to society equals to the additional benefit gained by society for the last unit of education.
- Since Qs>Qe, there is an underconsumption of education as for every additional unit consumed between Qe and Qs, MSB > MSC and hence causing a **deadweight loss** as represented by the shaded area.
- With the presence of a deadweight loss, economic inefficiency arises and hence this results in a market failure in the market of education due to positive externalities.

Exam Requirements

- Be able to define positive externalities.
- Be able to write an essay explaining how positive externalities result in market failure.

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Negative Externalities

Microeconomics
[Market Failure Causes]

Definition of Externalities

Occurs when consuming/producing a good/service has an impact on **3rd parties** who are **not directly involved** in the consumption/production of the good/service.

Negative Externalities

- 3rd party costs.
- A divergence is caused between Marginal Social Cost (MSC) and Marginal Private Cost (MPC).
- Negative externalities can be brought about by consumers and/or producers.

<u>**EXPLAINING**</u> a market failure (e.g Cigarettes)

<u>1. Define Market Failure and Negative Externalities</u>

- Market failure is occurs as a result of <u>**economic inefficiency**</u> in a market, where in this case market failure is brought about by **negative externalities**.
- Negative Externalities occur when **consuming/producing** a good/service has a **negative impact on 3rd parties** who are <u>**not directly involved**</u> in the consumption/production of the good/service.

EXPLAINING a market failure (e.g Cigarettes)

2. Explain Marginal Private Benefit (MPB) and Cost (MPC)

- The Marginal Private Benefit (MPB) to a consumer of cigarettes is the **additional satisfaction** gained from smoking, while the Marginal Private Cost (MPC) is the additional cost required to consume an **additional unit of cigarette**.
- In the free market, consumers consume up to where MPB = MPC so as to **maximise their own welfare**.

EXPLAINING a market failure (e.g Cigarettes)

3. Explain Marginal External Cost (MEC), State Assumptions

- Assuming **no negative externalities**, Marginal External Benefits (MEB) = 0 and thus MSB= MPB since MSB = MPB + MEB.

4. Explain in detail the negative externalities

- Negative Externalities arise as the consumption of cigarettes results in **spillover costs** on third parties such as family members through worsened health effects through the 2nd hand and 3rd hand smoke which can result in onset of lung cancer and infection.

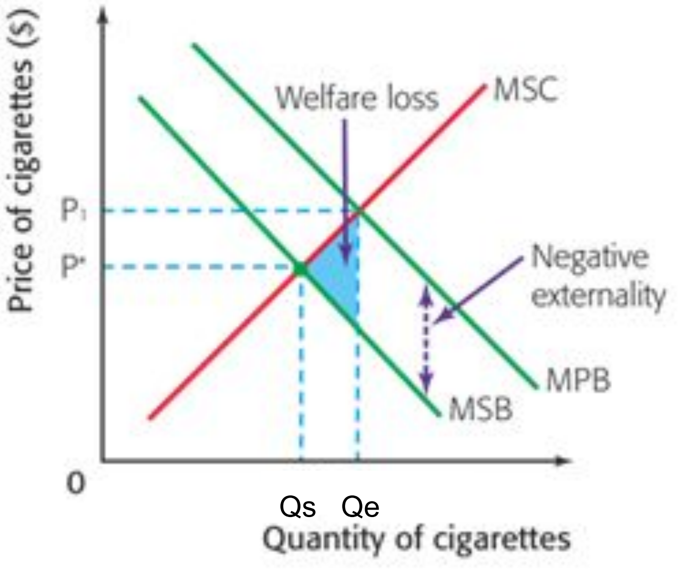
EXPLAINING a market failure (e.g Cigarettes)

5. Explain divergence between MSC and MPC known as MEC

- Hence, due to the negative externalities, there will be a divergence of MEC between MSC and MPC, since MSC = MPC + MEC.

EXPLAINING a market failure (e.g Cigarettes)

6. Draw the diagram



EXPLAINING a market failure (e.g Cigarettes)

7. Explain the societal optimal level and deadweight loss

- The socially optimal level, Qs occurs where MSC = MSB, where an additional cost to society equals to the additional benefit gained by society for the last unit of cigarettes.
- Since Qe > Qs, there is an underconsumption of cigarettes as for every additional unit consumed between Qe and Qs, MSC > MSB and hence causing a **deadweight loss** as represented by the shaded area.
- With the presence of a deadweight loss, economic inefficiency arises and hence this results in a market failure in the market of cigarettes due to negative externalities.

Exam Requirements

- Be able to define negative externalities.
- Be able to write an essay explaining how negative externalities result in market failure.

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Public Goods

Microeconomics
[Market Failure Causes]

<u>**Definition**</u> of Public Goods

A public good is a good/service that is provided **without profit** to <u>**all members of a society**</u>, usually by the government, but at times private firms.

<u>2</u> conditions for a good/service to be a Public Good

1. **Non-Excludable** in consumption
2. **Non-Rivalrous** in consumption

NON-EXCLUDABLE

Definition:

- Difficult, costly or impossible to exclude non-payers from enjoying the good/service.

Explanation:

- As a result, no one is willing to pay for the good/service → Results in the **free-rider problem** where those who benefit from the good/service do not have to pay for it → Hence, there is **no effective demand** → Profit-seeking firms will **not have an incentive** to produce the good/service → Results in a **missing market**.

NON-RIVALROUS

Definition:

- Consumption of the good/service from one person does not reduce the amount available for others to consume.

Explanation:

- Once produced, additional consumers can consume it without reducing the amount for others → Marginal cost of providing the good for additional users will be zero → Hence, the **efficient price would be zero** since the condition for **allocative efficiency is P=MC** → Government provides such goods to citizens for **FREE**.

Examples of Public Goods

- Fireworks
- Public Libraries
- Public Benches
- National Defense

Exam Requirements

- Be able to explain the concepts of non-excludable and non-rivalrous in relation to public goods.

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Imperfect Information

Microeconomics
[Market Failure Causes]

<u>**Definition**</u> of Imperfect Information

When some/all participants in an economic exchange <u>**do not have perfect knowledge**</u> of the benefits and/or costs of the good/service.

2 Cases of Imperfect Information

1. Perceived MPB vs Actual MPB
2. Perceived MPC vs Actual MPC

Perceived MPB vs Actual MPB

- **MPB perceived**: Healthcare is for the weak and it would not actually help me in any way, I am perfectly healthy.
- **MPB actual**: Can protect one from viruses naked to the eye, detect early onset of illnesses.

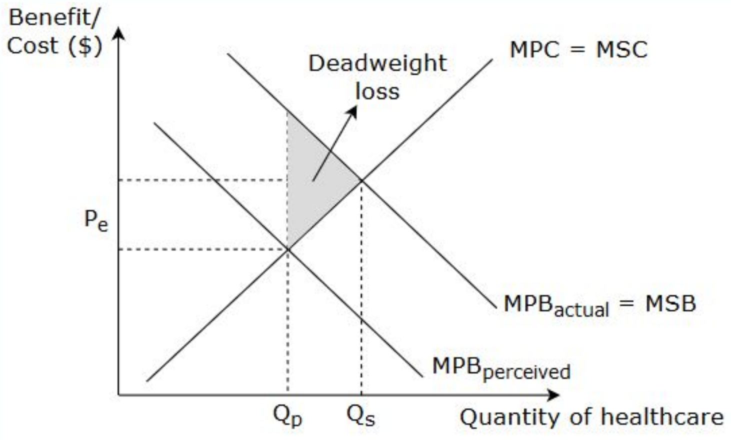


Figure 2

Perceived MPB vs Actual MPB

- When MPBperceived < MPBactual → The good/service is under consumed (Qp < Qs) → Results in a deadweight loss to society since SMB > SMC → Economic Inefficiency and hence market failure.
- E.g. Healthcare market

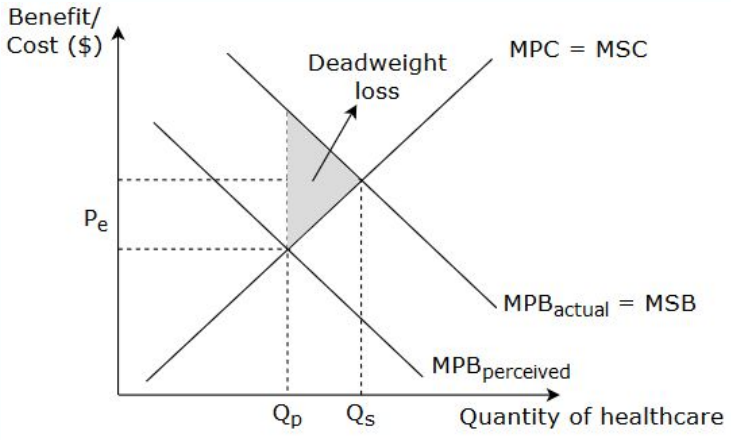
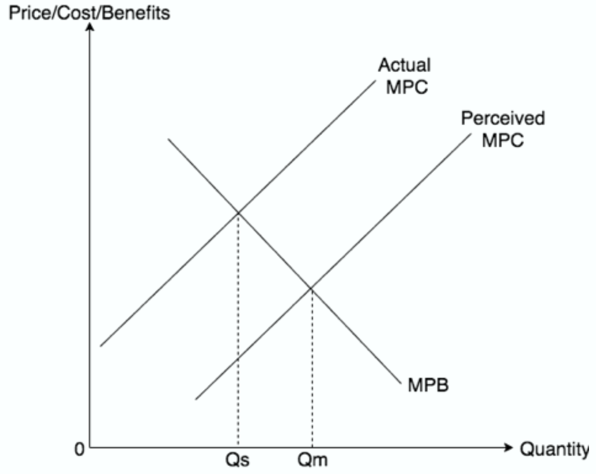


Figure 2

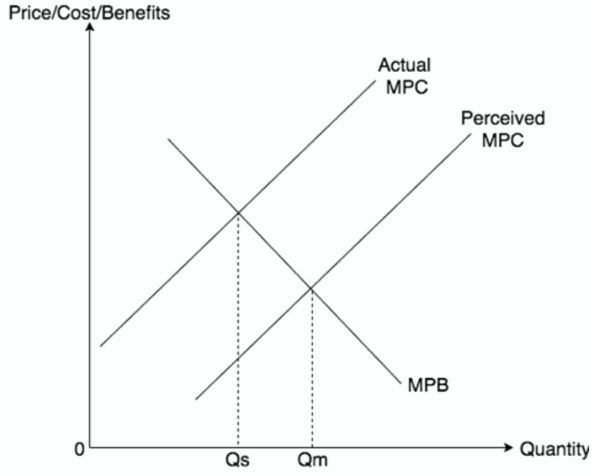
Perceived MPC vs Actual MPC

- **MPC perceived**: Cigarettes do not actually cause much harm to the lungs as I as the smoker does not feel any pain.
- **MPC actual**: Causes ‘blackening’ of lungs and can lead to lung cancer which cannot be detected early/felt till a later stage.



Perceived MPC vs Actual MPC

- When MPCperceived < MPCactual → The good/service is over consumed (Qm > Qs) → Results in a deadweight loss to society since SMC > SMB → Economic Inefficiency and hence market failure.
- E.g. Market for cigarettes



Exam Requirements

- Be able to explain and draw the diagrams for the 2 cases of imperfect information.

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Asymmetric Information

Microeconomics

[Market Failure Causes]

Definition of Asymmetric Information

When one economic agent involved in the economic transaction has **more or better information** than the other.

2 Cases of Asymmetric Information

1. Adverse Selection
2. Moral Hazard

Adverse Selection

- Occurs when a good/service is predominantly demanded by a certain group of economic agents who could offer the **lowest level of return** for other economic agents.

- E.g. **Insurance**
  - Buyer has more knowledge (e.g., about their health) as compared to the seller.
  - To combat adverse selection, insurance companies reduce exposure to large claims by limiting coverage or raising premiums.
  - Higher risk groups of people tend to be charged higher premiums.

Moral Hazard

- Occurs when economic agents take **greater risks** than they normally would because the costs that would result **would not** be borne by the economic agents themselves.

- E.g. **Shared Bikes**
    - As the bicycle does not belong to the economic agent renting it, he/she might be less likely to be careful and more likely to take risks with the bicycle.

Exam Requirements

- Be able to explain the 2 cases of asymmetric information.

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Taxes

Microeconomics
[Market Failure Policies]

Usage of **Taxes**

1. To correct Negative Externalities in consumption
2. To correct Negative Externalities in production

Taxes used to correct NE in **consumption**

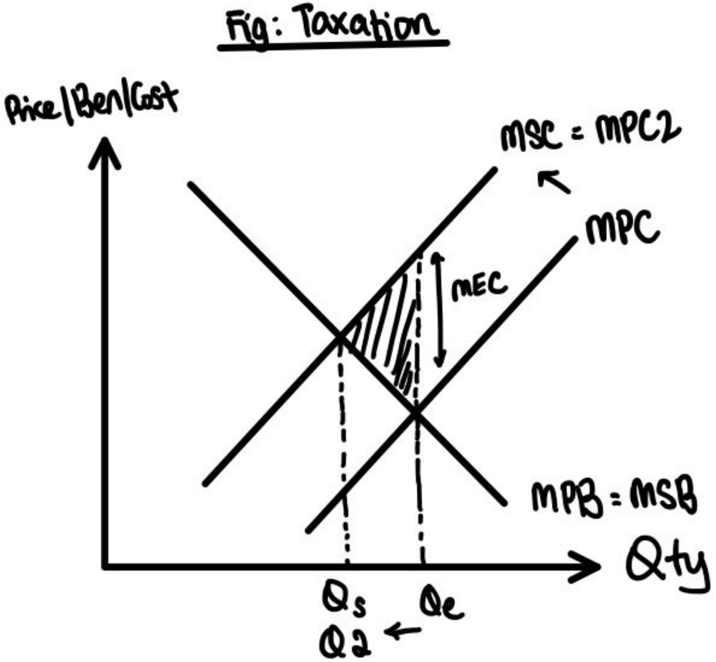
- Tax imposed that is equal to Marginal External Cost (MEC) → Increases Marginal Private Benefit (MPC) of consumers → Consumers internalise MEC → MPC moves upwards → New MPC coincides with MSC at the socially optimal level → Deadweight loss is removed/reduced → Market Failure is corrected.

<u>Benefits</u>: Taxes can be easily adjusted up/down to meet socially optimal level. Higher tax revenue gained.

<u>Limitations</u>: Effectiveness depends on Price elasticity of demand.

- E.g. *Cigarettes*: Price inelastic in demand → Increase price results in less than proportionate fall in Qdd → Larger tax needed (could be inequitable/unfavourable)

Taxes used to correct NE in **consumption**



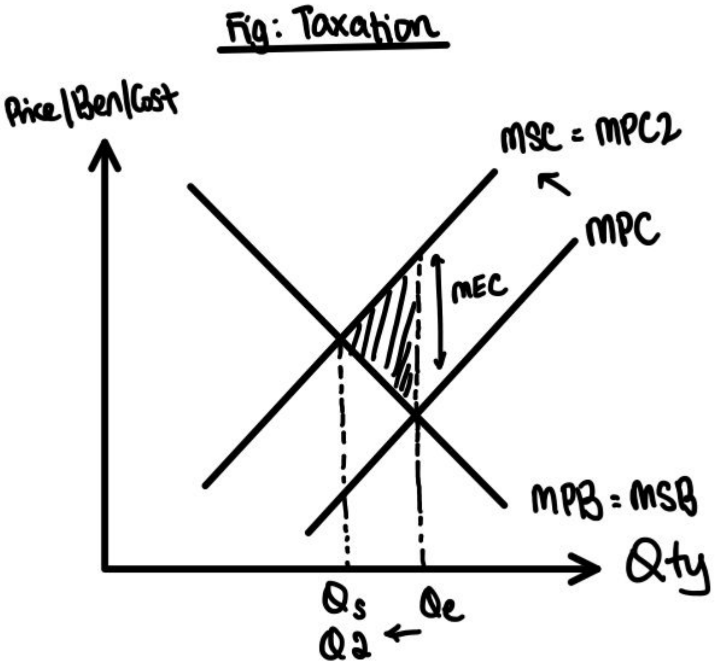
Taxes used to correct NE in **production**

- Tax imposed that is equal to Marginal External Cost (MEC) → Increases cost of production to producers → Increases Marginal Private Benefit (MPC) of producers → Forces producers to internalise MEC → MPC moves upwards → New MPC coincides with MSC at the socially optimal level → Deadweight loss is removed/reduced → Market Failure is corrected.

Benefits: Taxes can be easily adjusted up/down to meet socially optimal level. Higher tax revenue gained.

Limitations: Effectiveness depends on Price elasticity of demand. Imperfect information may result in over-taxation → leads to greater DWL.

Taxes used to correct NE in **production**



Exam Requirements

- Explain how taxes can correct/reduce a market failure, as well as its attached benefits and limitations.
- Pair this policy with other policies to ensure a well-targeted approach to any market failure.

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Subsidies

Microeconomics
[Market Failure Policies]

Usage of **Subsidies**

1. To correct Positive Externalities in consumption
2. To correct Positive Externalities in production

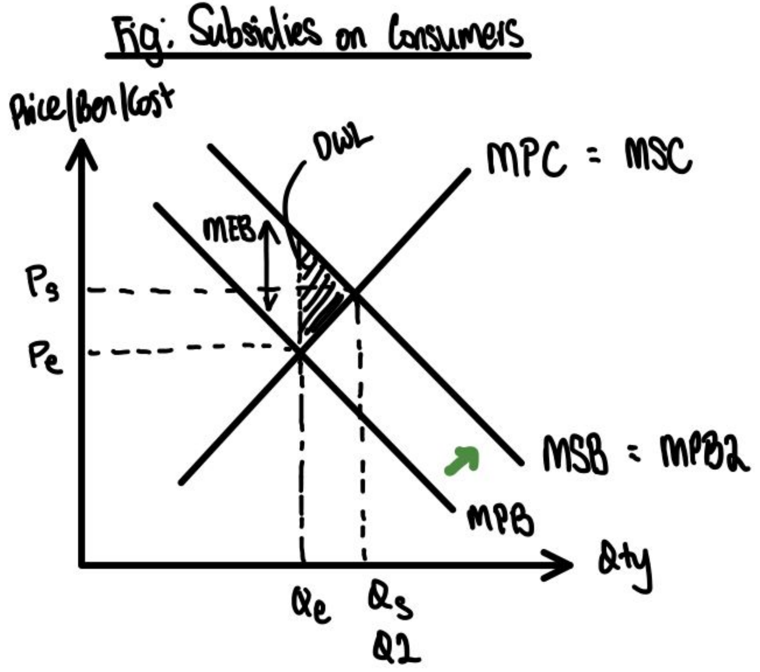
Subsidies used to correct PE in **consumption**

- A subsidy will allow consumers to be able to afford the good → Increases willingness and ability of consumers to consume → Rise in MPB to MPB2 = MSB → Qe rises to Q2 = QS → Deadweight loss is eliminated → Market failure corrected.

Benefits: Subsidies can be **easily adjusted** to achieve the socially optimal level of consumption.

Limitations: Subsidies directly **reduce tax revenue** which could be used to fund other sectors of the economy → Opportunity cost incurred.

Subsidies used to correct PE in **consumption**



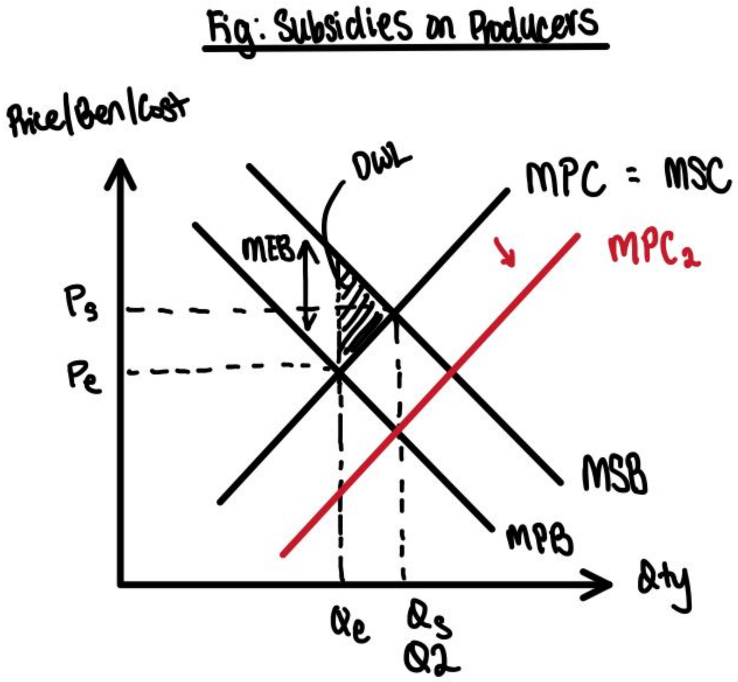
Subsidies used to correct PE in **production**

- A subsidy to producers can help to reduce cost of production → Increases supply → Producer's MPC will shift down to MPC2 → Qe shifts to Q2 = QS → Deadweight loss is eliminated and price falls by MEB amount → Market failure corrected.

Benefits: Subsidies can be **easily adjusted** to achieve the socially optimal level of consumption.

Limitations: May be hard to estimate subsidies that will sufficiently reduce costs of production → Over-subsidisation or under-subsidisation may result in more market inefficiencies.

Subsidies used to correct PE in **production**



Exam Requirements

- Explain how subsidies can correct/reduce a market failure, as well as its attached benefits and limitations.
- Pair this policy with other policies to ensure a well-targeted approach to any market failure.

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Regulations

Microeconomics
[Market Failure Policies]

Usage of **Subsidies**

1. To correct Positive Externalities in consumption
2. To correct Positive Externalities in production

Subsidies used to correct PE in **consumption**

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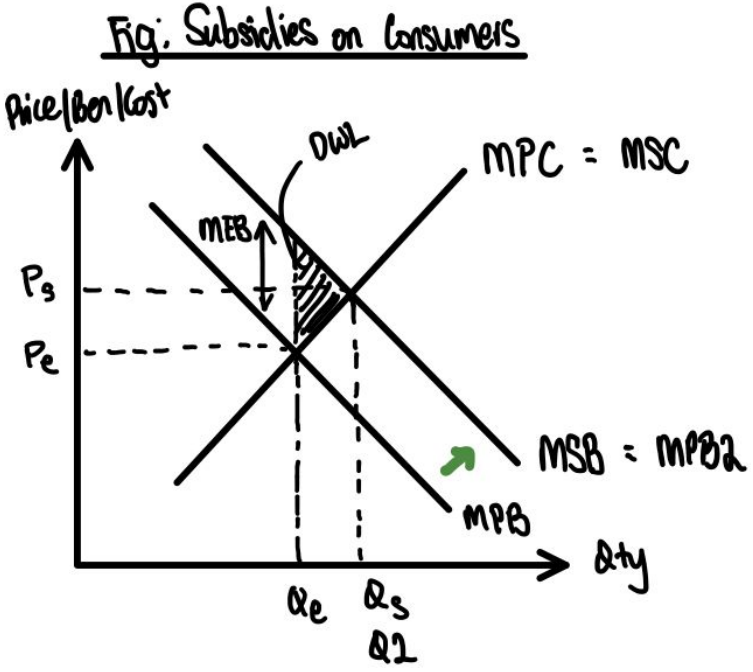
Subsidies used to correct PE in **consumption**



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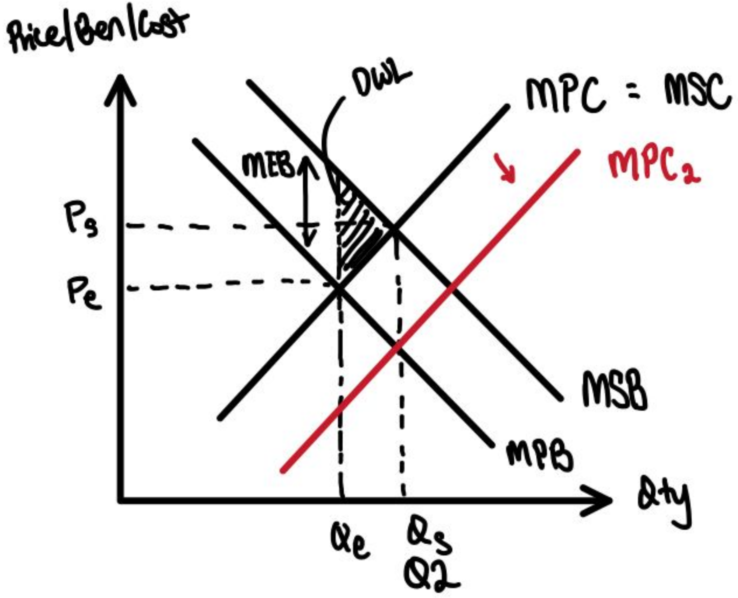
Subsidies used to correct PE in **production**

Fig: Subsidies on Producers



Exam Requirements

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