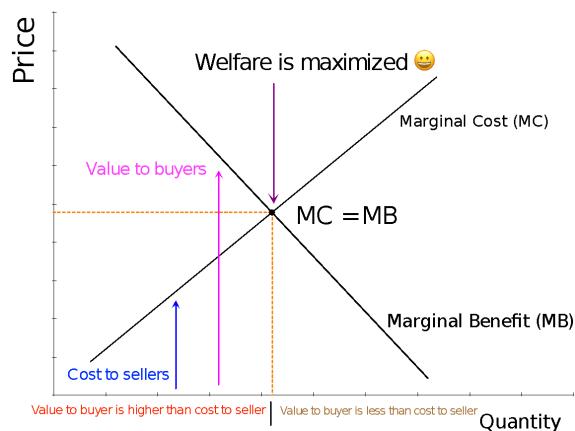


Market Failure and Negative Externalities

Notes

WHAT IS MARKET FAILURE?

- We assume: **market prices = all the benefits and costs by producers and consumers involved in an exchange.**



- Market Failure** is a situation where: **market prices fail to reflect all the costs and benefits involved in transaction and thus the free market fails to reach allocative efficiency.**

EXTERNALITIES AS A SOURCE OF MARKET FAILURE

Externalities exist when some of the costs or benefits associated with the production or consumption of a product.... **spill over onto third parties, who do not pay to consume the product,**



Example: When a person drives a car, they may pay for the car, the costs of gas and the costs of insurance. In any of these prices though, they do not pay for the cost of pollution to people who are not driving. In fact, the costs of the pollution generally aren't included in any price.

- Not taking into account externalities leads to... **Market failure.**

POSITIVE AND NEGATIVE EXTERNALITIES

- Positive externalities** are... **benefits**

enjoyed by someone who does not produce or pay to consume a product.



Negative externalities are... **costs**

Paid by someone who does not produce or pay to consume a product.

NEGATIVE EXTERNALITIES OF PRODUCTION

- A cost (harmful effect) that is suffered by a third party as a result of production of a good or service



Example: when steel is produced, smoke releases chemicals that can cause acid rain. This affects people who did not produce or consume the steel.

HOW DO NEGATIVE EXTERNALITIES OF PRODUCTION LEAD TO MARKET FAILURE?

- When negative externalities of production are not recognized
↳ Leads to an overproduction of a good/service in the free market
- This leads to allocative inefficiency and harm to society

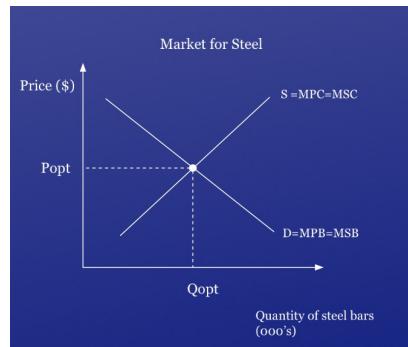
DIFFERENT TYPES OF COSTS AND BENEFITS

- Marginal private cost (MPC):**
 - Cost to producers of producing one more unit of a good or service.
- Marginal social cost (MSC):**
 - The cost to society of producing one more unit of a good or service.
 - Includes costs of production AND external cost.

- Marginal private benefit (MPB):**
 - benefit to consumers from consuming one more unit of a good or service
- Marginal social benefit (MSB):**
 - The benefit to society of consuming one more unit of a good or service.

SOCIAL OPTIMUM

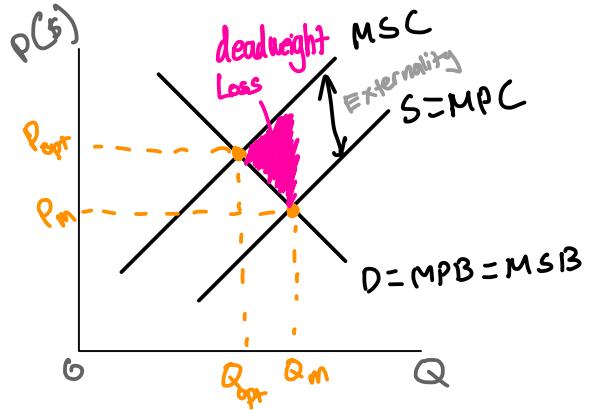
- When all costs/benefits are aligned, the market is operating at its "social optimum" or allocative efficiency.



EXTERNAL COST

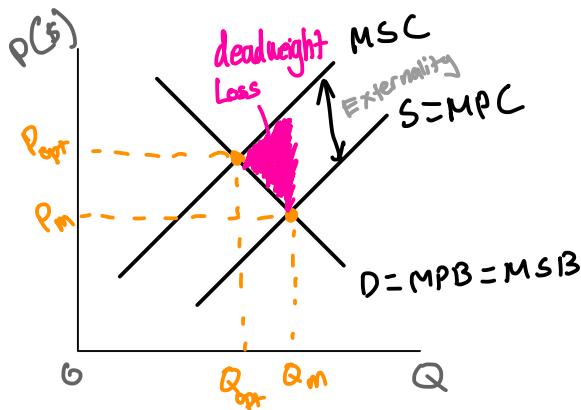
- But, when social costs are more than private costs

MSC > MPC



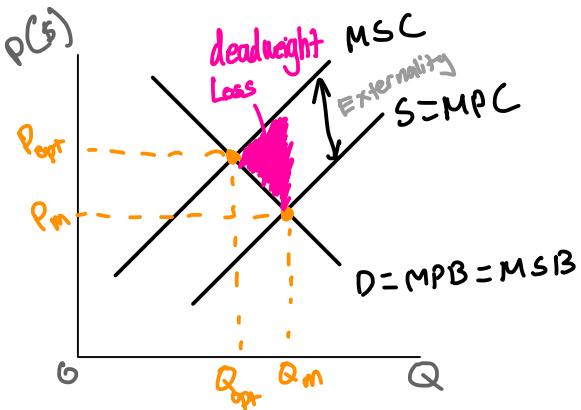
- The external cost of producing each unit of the good or service is...

TWO EQUILIBRIUMS



- This means there are two equilibriums: a market equilibrium (Q_m, P_m) and,
- A socially optimal equilibrium (Q_{opt}, P_{opt})

OVERPRODUCTION AND WELFARE LOSS



- $Q_m > Q_{opt}$, showing an "overproduction" of the good.
- Too much is being produced at too low a price.
- This results in... *deadweight loss to society.*

SOLUTIONS?

1. Government Regulations

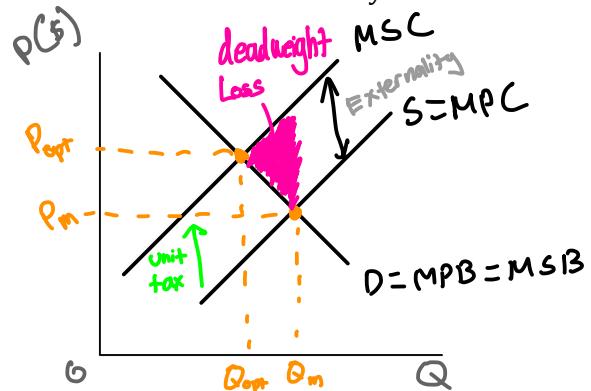
The government could legislate and could ban the polluting firms, or restrict their output in some way.



It could also pass laws relating to measurable environmental standards in the firm's production units. To meet the standards, the firms would have to spend money, thus increasing their private costs.

2. Indirect taxes

The government could tax the firm in order to increase the firm's private costs and so shift the MPC curve upwards toward the socially optimum point. If the tax is equal to the cost of production, then we say the government has "internalized the externality."



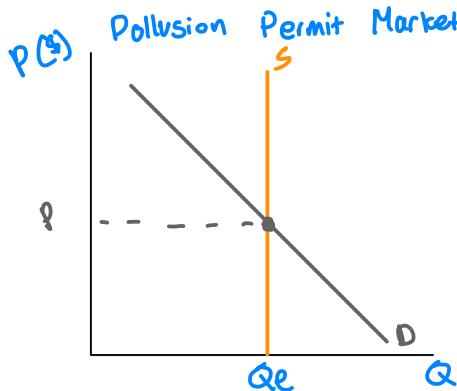
- 3. Tradeable emission permits
↳ Sometimes called cap and trade

These are a market-based solution to negative externalities of production. Tradeable emission permits are issued by the government and give

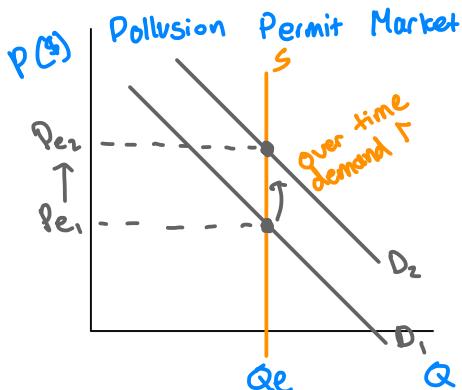


the firms the licence to create pollution up to a set level. Once they are issued, firms can buy, sell, and trade the permits on the market.

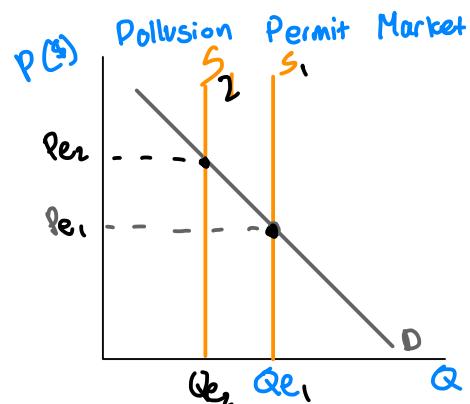
CREATING A MARKET FOR POLLUTION



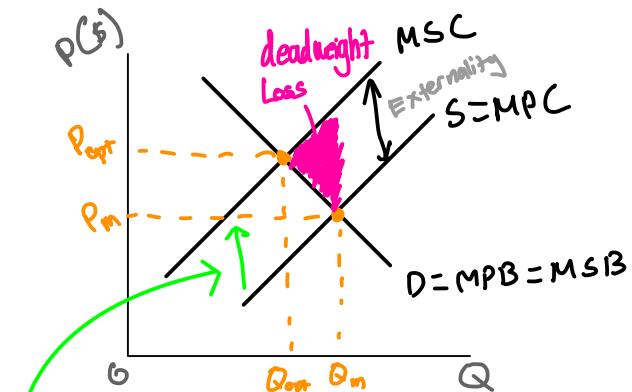
- A trade permit system can create a “pollution permit market” where producers can buy and sell the right to pollute.
- The supply curve is completely vertical because the number of permits is limited by the government.
- An equilibrium is established at Q_e , P_e when the market is created.
- Firms must pay for pollution that they didn't have to pay before.



- If firms pollute more than allowed by the permits they have, they will demand more permits from the market, which will increase price.
- Demand will shift to D_1 and the new equilibrium will be Q_e , P_{e1} .



- Similarly, if the government wants to lower the total level of pollution, it will decrease the number of permits available to pollute.
- This will shift supply leftward from S to S_1 , and the new equilibrium will be Q_{e1} , P_{e1} .



- Having to buy pollution permits increases the costs of production for firms.
- This shifts the $S = MPC$ curve upward, so that it is either closer to or equal to the MSC curve.
- The externality is reduced or eliminated, and there is less overproduction and deadweight loss.

WHAT ARE NEGATIVE EXTERNALITIES OF CONSUMPTION?

- Negative externalities of consumption refer to... *external costs created by consumers*



Example: when consumers smoke in public places, there are external costs that spill over onto society in the form of costs to non-smokers due to second-hand smoke.

In addition, smoking-related diseases result in higher than necessary health care costs that are an additional burden upon society.

Other examples:

- Heating homes and driving cars with fossil fuels

- What is the "3rd party" cost?

- Pollution

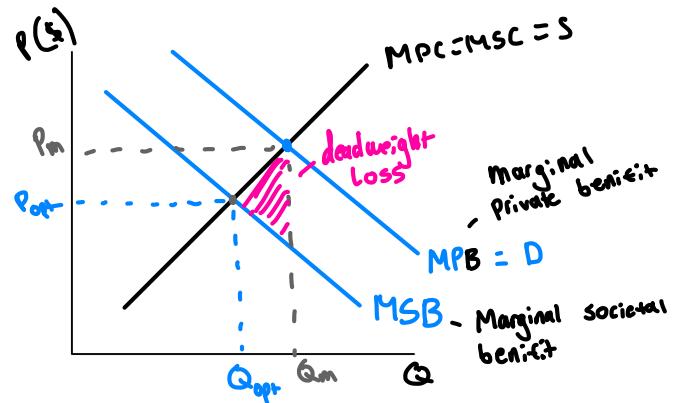
- Inhalation smoke

- Partying in early morning

- What is the "3rd party" cost?

- noise for neighbours

NEGATIVE EXTERNALITIES OF CONSUMPTION LEADING TO MARKET FAILURE



- Private benefit > Social benefit
= *externality*
- Think as "negative benefit"

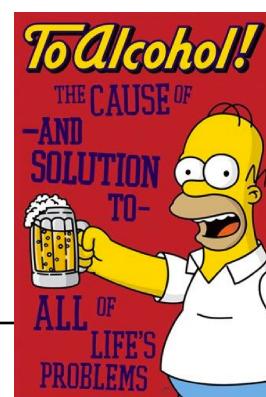
- Market equilibrium > Socially optimal equilibrium
= *overconsumption*
- Because there is overconsumption of the good, there is deadweight loss or welfare loss.

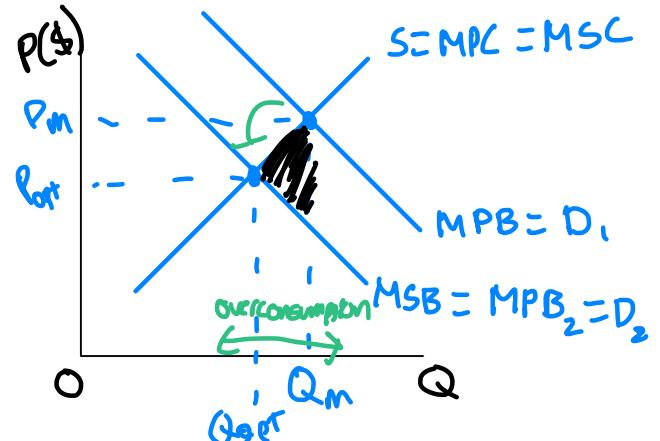
THE CASE OF DEMERIT GOODS

- Demerit goods... are goods that are undesirable for consumers but are overprovided by the market

Examples:

- cigarettes
- alcohol
- gambling





WHY ARE DEDMERIT GOODS OVERPROVIDED BY THE MARKET?

1. Negative externalities of consumption

2. People don't know their harmful effects upon others or themselves.

SOLUTIONS

1. Government legislation / regulations



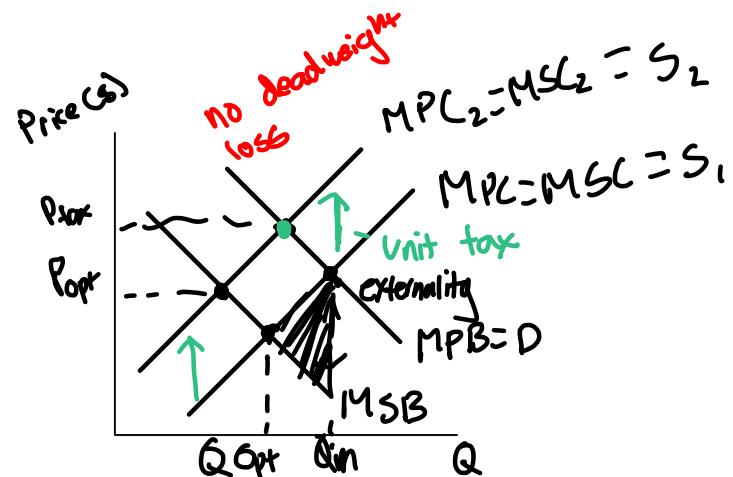
The government could prevent or limit the consumption of the good. For instance, it could make smoking illegal on patios or in public spaces.

This would shift the $D = MPC$ curve towards the MSB curve until the two curves overlap. The allocatively efficient amount would be produced (Q_{opt}). This would eliminate the externality and correct the market failure.

2. Indirect taxes



The government could impose a tax...



This will decrease $S = MPC = MSC$. If the tax is equal to the external cost, the market operates at the allocative efficient quantity (Q_{opt}). This will remove the externality and correct the market failure.

3. Education / raising awareness



The government could provide education about...

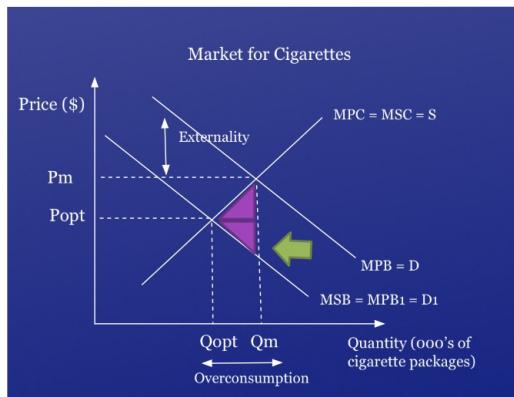
4. Consumer nudges

Behavioral economics has shown consumers do not always have perfect information and do not always make rational choices.

Consumers are also subject to peer pressure and can have limited will power.

Behavioural economics suggests that the government use "consumer nudges" to encourage consumers to reduce their consumption voluntarily.

For example, laws have been put in place to require cigarette packages have due colours or graphic imagines showing the dangers of smoking.

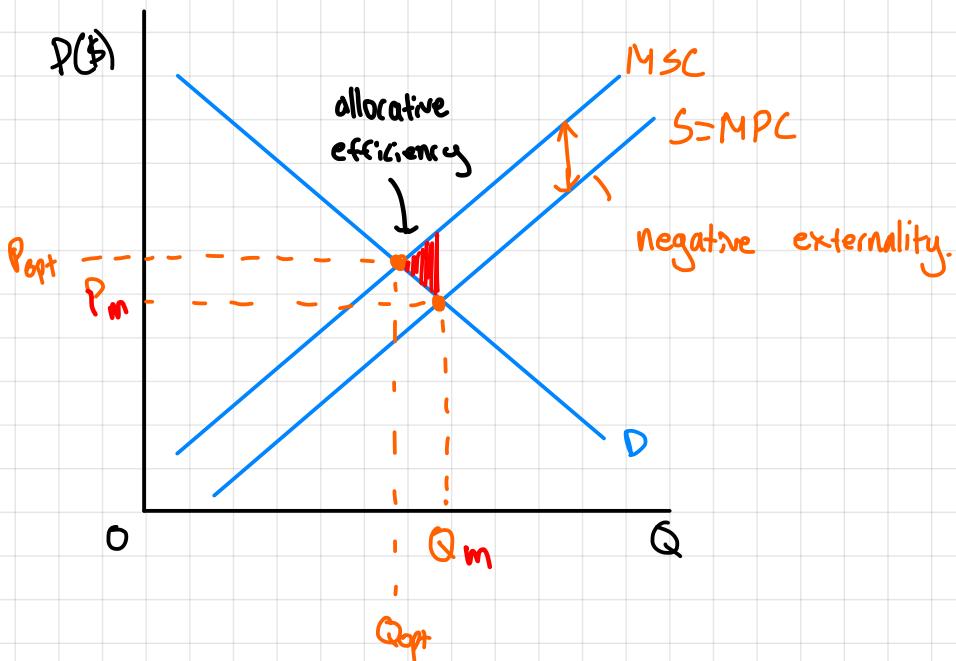


The objective is to try to decrease the demand for such goods, and the effects are the same as with government regulations. The $D = MPB$ curve shifts to the left after the negative advertising, where it equals MSB and the allocatively efficient quantity (Q_{opt}) is consumed.

Homework Feb 28: #1-4

①

a)



B & C

The equilibrium determined by market is at a lower price and higher quantity demanded because the negative societal externality is not accounted for in the supply side.

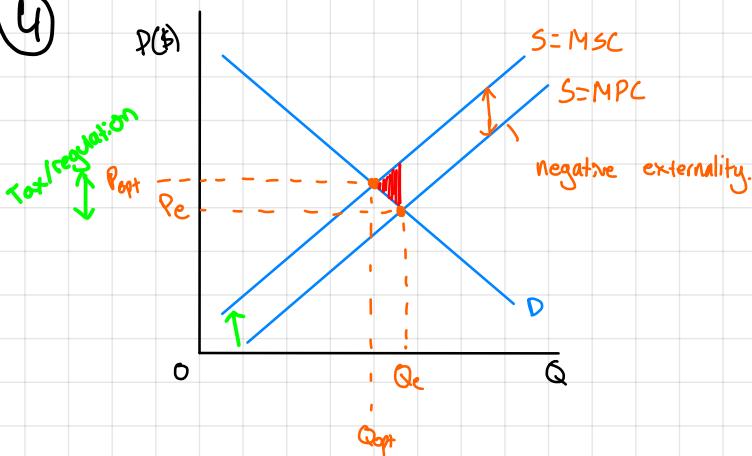
②

- Carbon emissions
- Noise of manufacturing
- Water pollution
- Battery production

③ Carbon tax, move manufacturing far, pollution regulations,

All raise cost of production which aim to bring MPC to MSC and become allocatively efficient.

④



c)

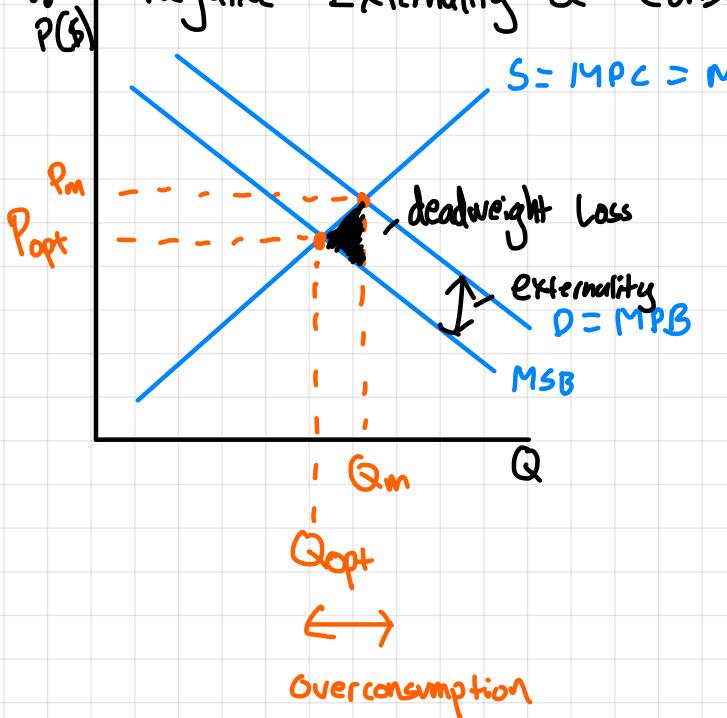
Regulations

Pros	Cons
<ul style="list-style-type: none"> • Specific Target • Shifts S Curve to opt. 	<ul style="list-style-type: none"> • Reduce S, reduce TR for firms • Could reduce employment • Costly to report

Taxes

Pros	Cons
<ul style="list-style-type: none"> • Govt gains revenues • Shifts S curve to optimal • Market based measure. (uses the price mechanism) 	<ul style="list-style-type: none"> • Reduce TR for firms • Could reduce employment • ↑ price for consumers • Broad - scope can target outside problem. • High revenue firms will still pollute.

1. Negative Externality of Consumption



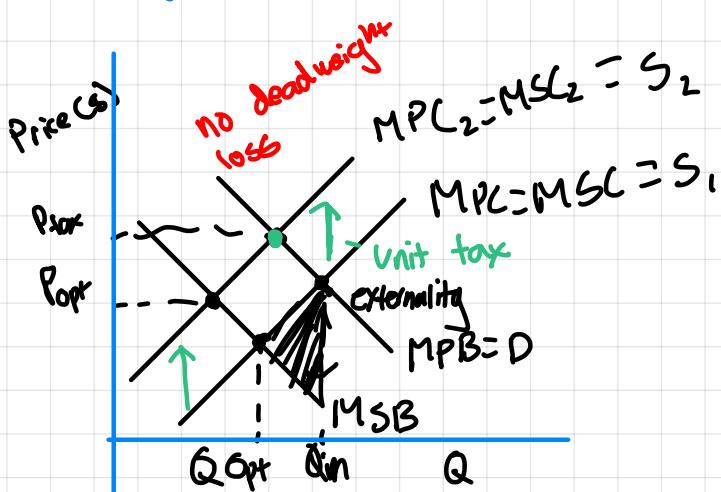
②

- cigarettes
- driving cars

demerit goods:

- alcohol
- cigarettes

P+2. Q4



d) taxes

- ↳ Use price mechanism
 - ↳ Stays in market
 - ↳ Bad for consumers - higher price
 - ↳ Less targeted
- Regulations
- ↳ More targeted
 - ↳ Effective
 - ↳ Not a market solution
 - ↳ Fills business

Q5) demerit good causes harm to both consumer and is overproduced
a) by the market such as cigarettes, alcohol and gambling.

b) Can be corrected with taxes, regulations and teaching the public about the harmful effects

Q6) negative consumption externality: Harm to society when consuming the good

negative production externality: Harm to society when producing the good.