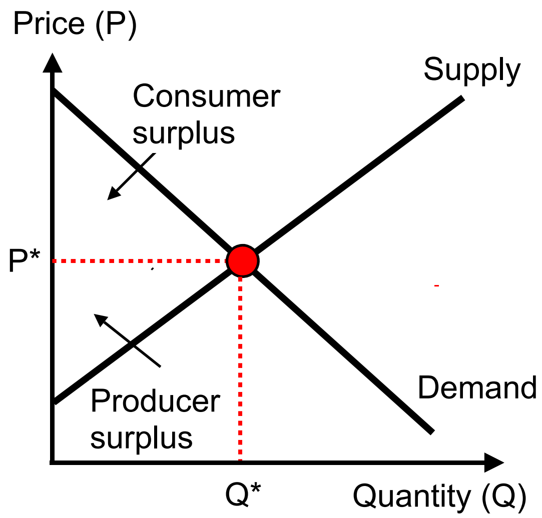
Welfare loss

1

Welfare losses (deadweight losses) occur when the efficient market quantity is not demanded and supplied. They result in a reduction of the economic surplus (social surplus, total surplus), which is the sum of consumer and producer surplus.

Efficient market quantity:



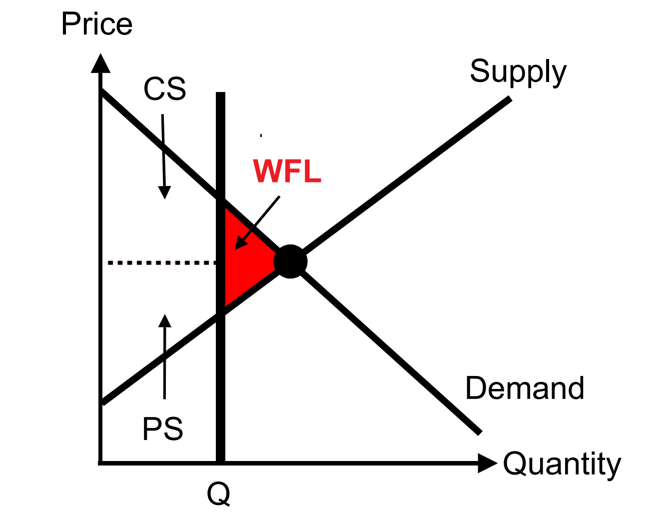
In the efficient market equilibrium, benefits (represented by demand) and costs (represented by supply) are equal. If the quantity is larger or smaller than the efficient market quantity, a welfare loss results and there is a tendency towards equilibrium.

2

Examples of welfare losses are presented below. The following abbreviations are used:

AC = Average cost	MSC = Marginal social cost
AR = Average revenue	P = Price
CS = Consumer surplus	PC = Price ceiling
D = Demand	PF = Price floor
MC = Marginal cost	PS = Producer surplus
MPB = Marginal private benefit	Q = Quantity
MPC = Marginal private cost	S = Supply
MR = Marginal revenue	WFL= Welfare loss
MSB = Marginal social benefit	WP = World price

Example 2.1 *Underproduction and overproduction*

<table>
<tr><th>Underproduction</th><th>Overproduction</th></tr>
<tr><td>


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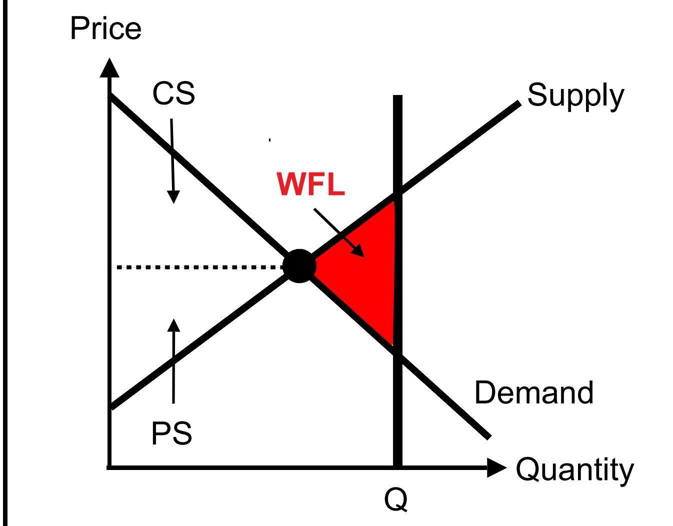
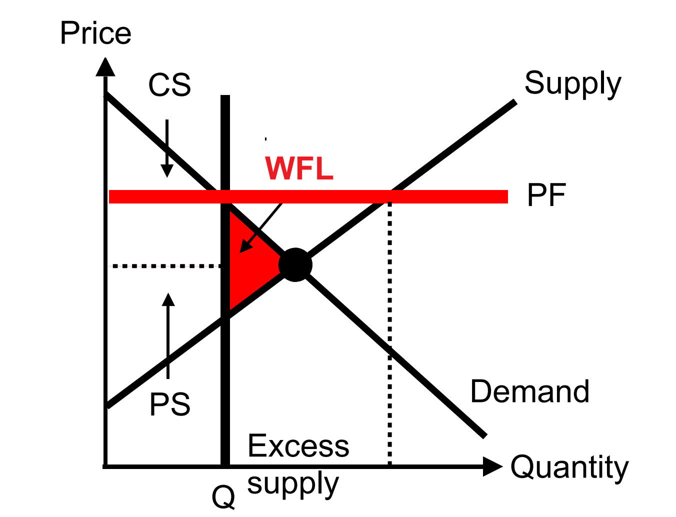


</td></tr>
<tr><td>The welfare loss could be eliminated by increasing the quantity. From quantity Q to market equilibrium, the benefit exceeds the cost.</td><td>The welfare loss could be eliminated by reducing the quantity. From quantity Q to market equilibrium, the cost exceeds the benefit.</td></tr>
</table>

Example 2.2 *Price floor and price ceiling*

<table>
<tr><th>Price floor</th><th>Price ceiling</th></tr>
<tr><td>


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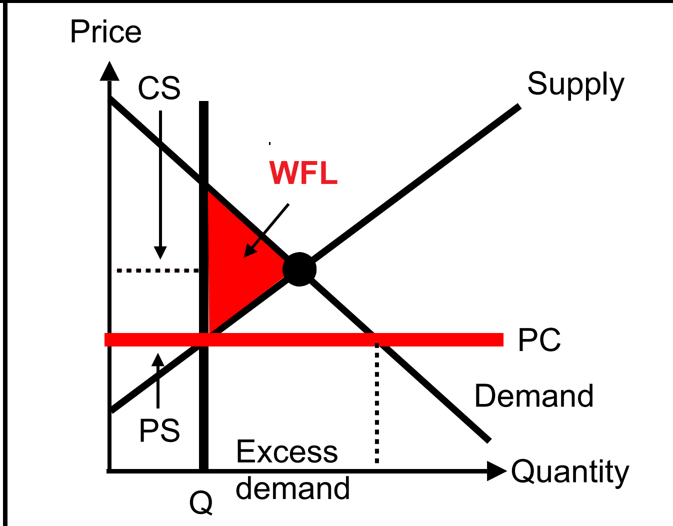
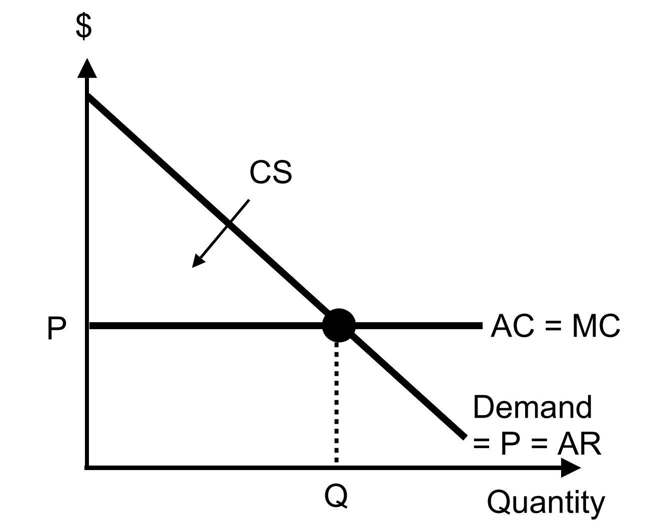
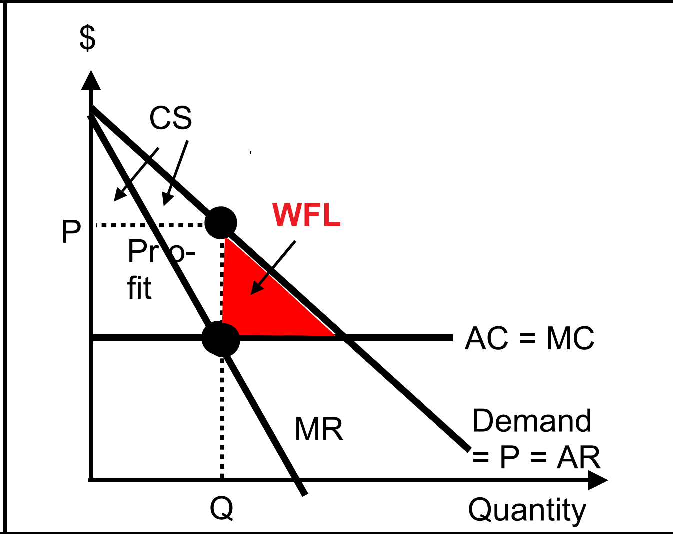


</td></tr>
<tr><td>The price floor results in an excess supply (quantity supplied > quantity demanded). The demand determines the quantity Q.</td><td>The price ceiling results in an excess demand (quantity demanded > quantity supplied). The supply determines the quantity Q.</td></tr>
</table>

Example 2.3 *Monopoly*

The monopolist acts like a competitive firm (P = MC).	The monopolist tries to maximize profit (P > MC).

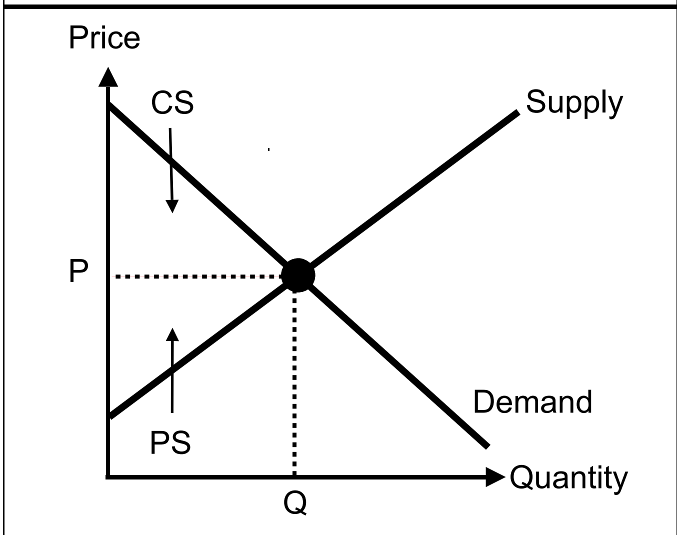


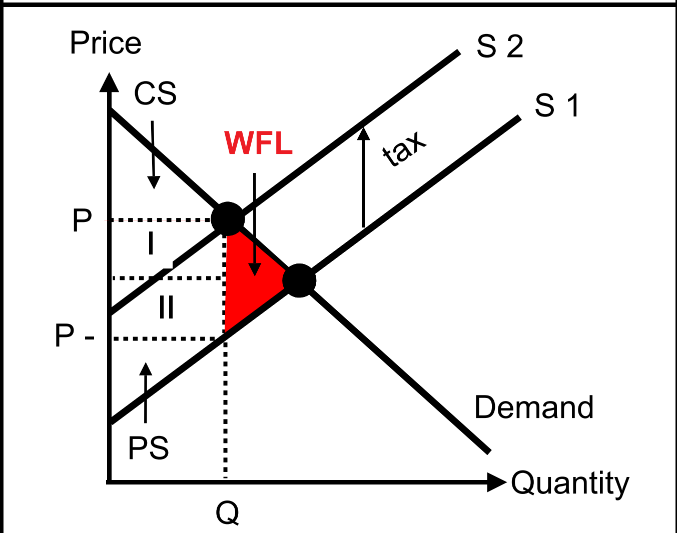


There is no welfare loss, since for quantity Q the benefit is equal to the cost. The consumer surplus is at a maximum. The company's profit is 0 (AC = AR).	The quantity is lower and the price higher than in the competitive situation. The consumer surplus is reduced because of the monopoly's profit and the welfare loss.

Example 2.4 *Sales tax (per unit)*

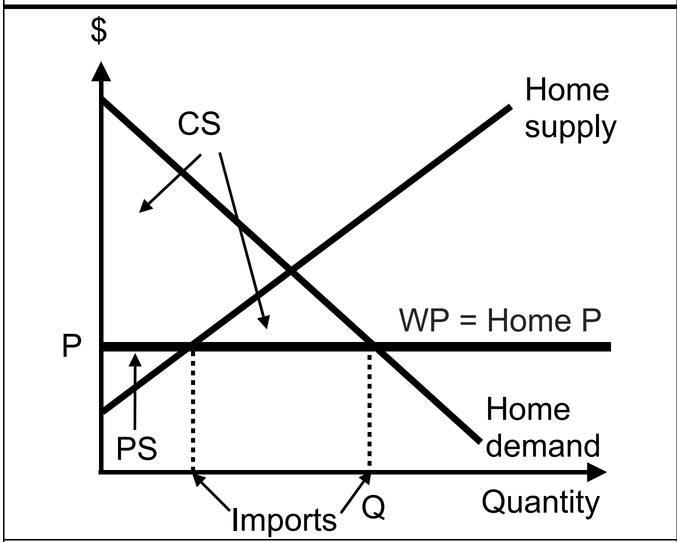
Situation before the introduction of the tax	Situation after the introduction of the tax





The market outcome is efficient. There is no welfare loss.	P - = P - tax The price is higher and the quantity lower than without tax. The tax revenue is the sum of I and II; part I is at the expense of the consumer surplus, part II at the expense of the producer surplus. There is a welfare loss.

Example 2.5 *Import tariff*

<table>
<tr><th>Situation before the introduction of the tariff</th><th>Situation after the introduction of the tariff</th></tr>
<tr><td>


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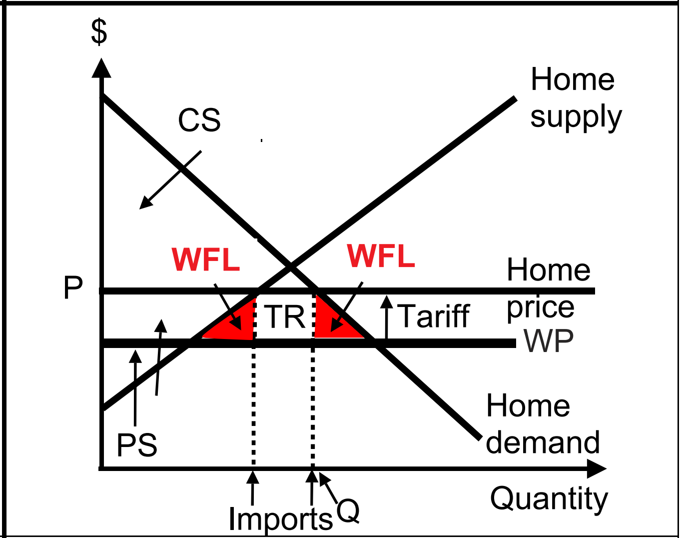
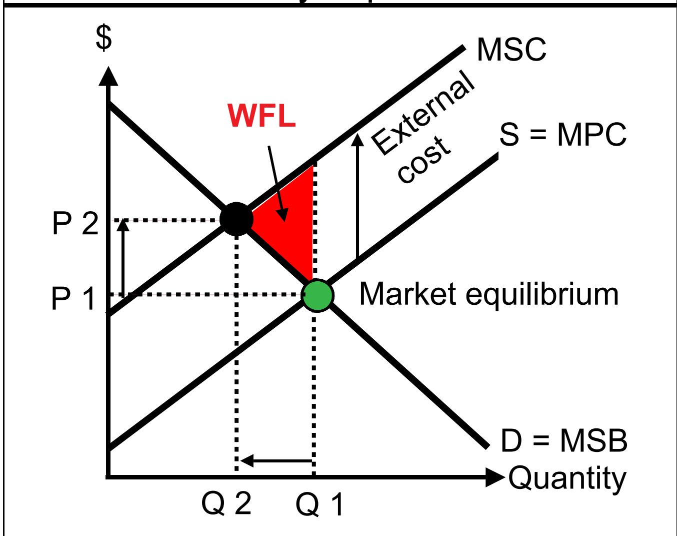


</td></tr>
<tr><td>Thanks to lower world prices and imports, there is a considerable consumer surplus.</td><td>TR = Tariff revenue
Consumer surplus is reduced, namely in favour of producer surplus, tariff revenue and welfare losses.</td></tr>
</table>

Example 2.6 *Negative externalities*

<table>
<tr><th>Externality in production</th><th>Externality in consumption</th></tr>
<tr><td>


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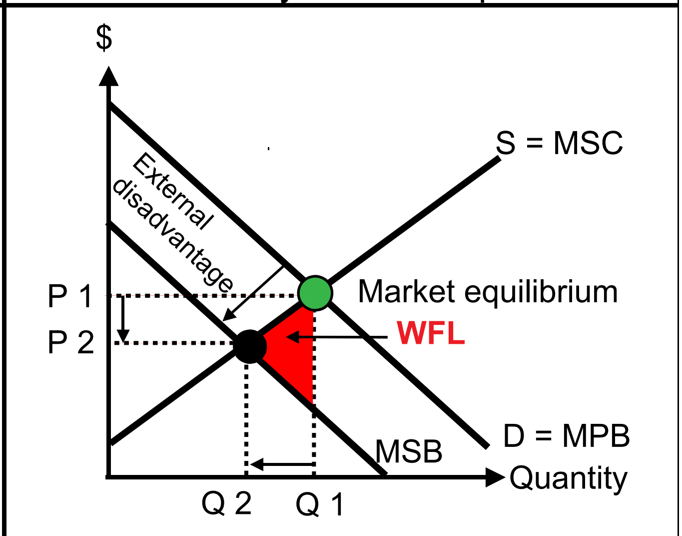

</td></tr>
<tr><td>Q 1 > Q 2; Q 1 is the market quantity without taking external cost into account. This is taken into account at Q 2. A welfare loss occurs because the cost exceeds the benefit between Q 1 and Q 2.</td><td>Q 1 > Q 2; Q 1 is the market quantity without taking into account the external disadvantage. This is taken into account in Q 2. A welfare loss occurs because the cost exceeds the benefit between Q 1 and Q 2.</td></tr>
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