ECO101: Introduction to Microeconomics

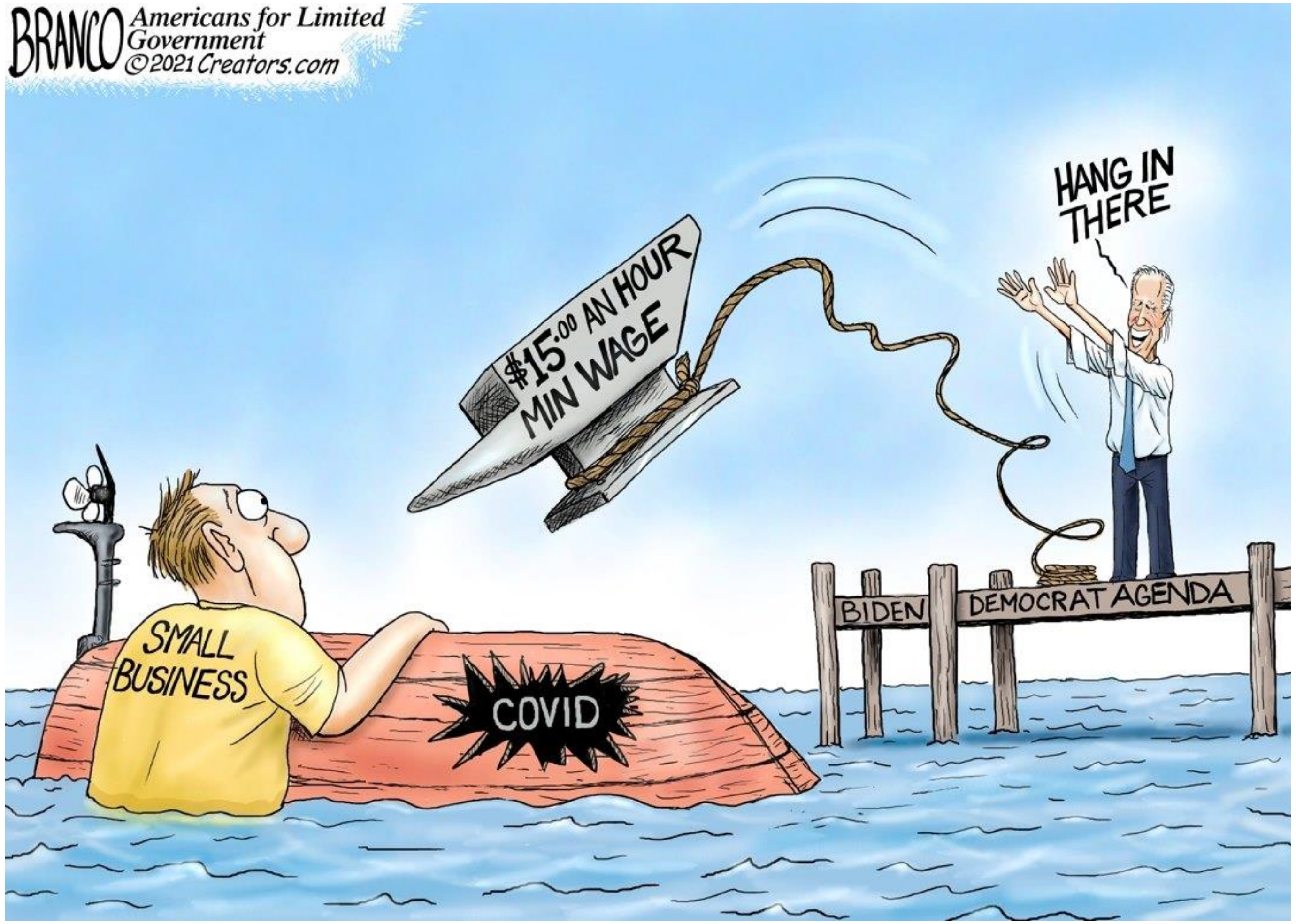
Lectures 10-11

Government Interventions in Markets

To what extent should governments intervene in the economy?

Free market economists argue that government interventions such as taxes, subsidies, price controls cause an inefficient allocation of resources.

Others argue that government interventions are necessary to overcome market failures arising from public goods, externalities, imperfect competition. In these cases, government action can help to minimize deadweight loss.



Housing Market & Rent Ceilings

- What is a price ceiling/price cap?
- A government regulation that makes it illegal to charge a price higher than a specified level e.g. a rent ceiling

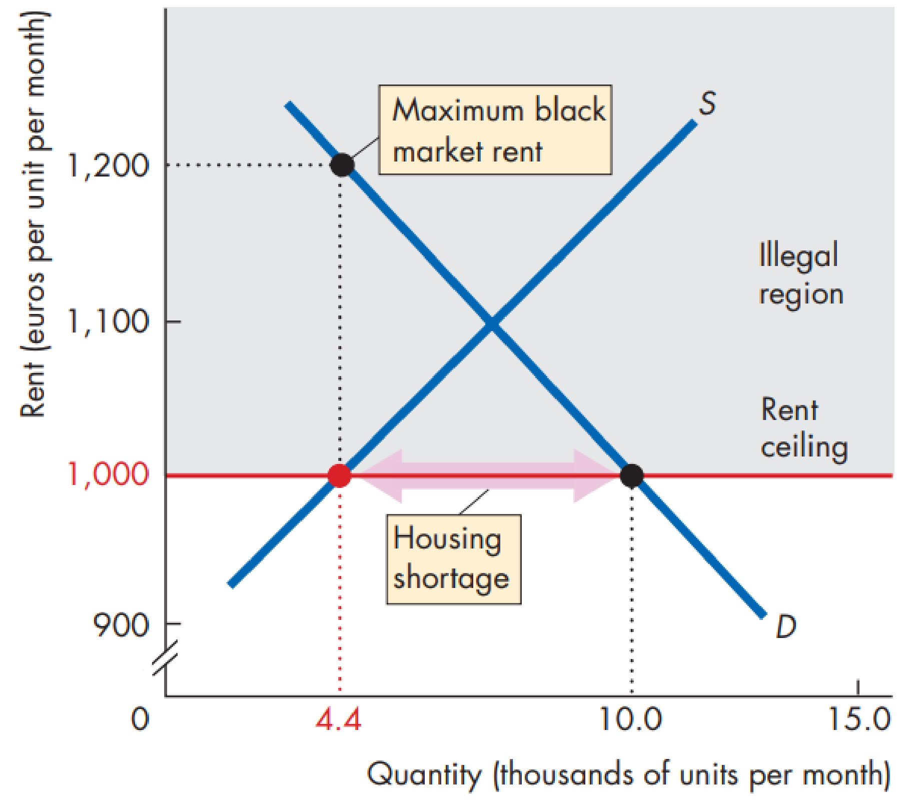
What effect does a rent ceiling have on the housing market?

- If the rent ceiling is set above the equilibrium price: no effect
- If the rent ceiling is set below the equilibrium price:
  - ➢ a housing shortage
  - ➢ increased search activity
  - ➢ a black market

What effect does a rent ceiling have on a housing market?

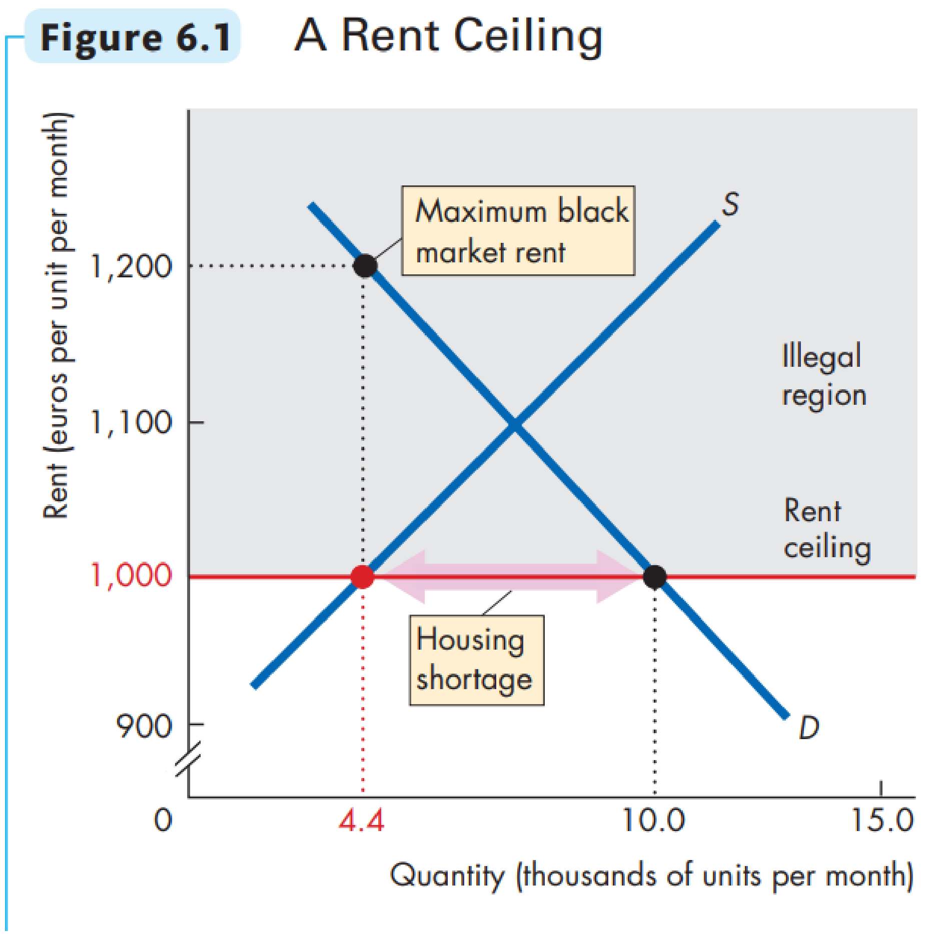
- When price is set below the equilibrium price, quantity demanded exceeds quantity supplied leading to a shortage in the market.
- Generally this tends to push price upwards and market would once again move towards the equilibrium.
- Refer to the market on the right: The free market equilibrium rent is 1100 euros and quantity traded is 7400 units.
- However in this case, imposition of the rent ceiling at 1000 euros means this price adjustment cannot take place.
- At the new price, there is a demand for 10,000 houses but only 4400 houses are available in the market. This will create a shortage of 5600 units of houses per month.
- 3000 (7400 – 4400) families will end up losing their homes as an effect of the rent ceiling.

Figure 6.1 A Rent Ceiling



What effect does a rent ceiling have on a housing market?

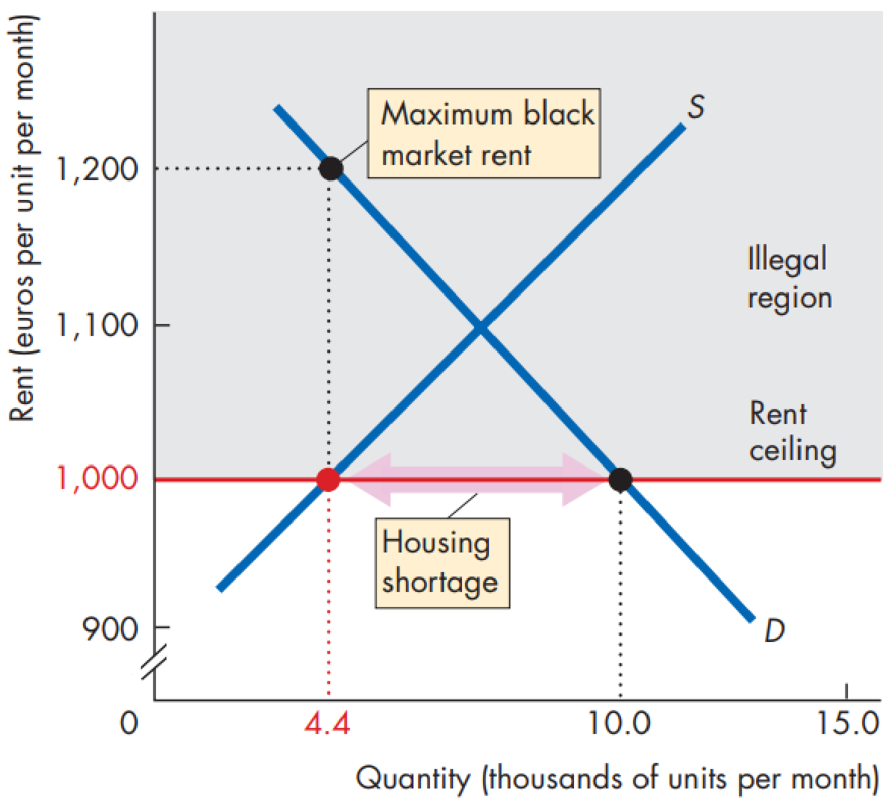
- As there are 4400 houses available for 10000 interested tenants, two other things happen:
- When engaging in a transaction, making a purchase, choosing someone to do business with, we spend some time in search activity.
- When a price regulation causes a shortage, search activity increases – when less houses are available, people spend more time looking for a house.



What effect does a rent ceiling have on a housing market?

- The opportunity cost of housing is equal to the rent (a regulated price) plus the time and other resources spent searching for the restricted quantity available – this can be seen as the total cost for housing.
- The cost of increased search activity might end up making the full cost of housing higher than it would be without a rent ceiling.
- Initially, we were willing to pay 1100 euros for a house. Because of the rent ceiling, price is restricted at 1000 euros. However, the increased search activity may be worth an additional 100 euros or even more.

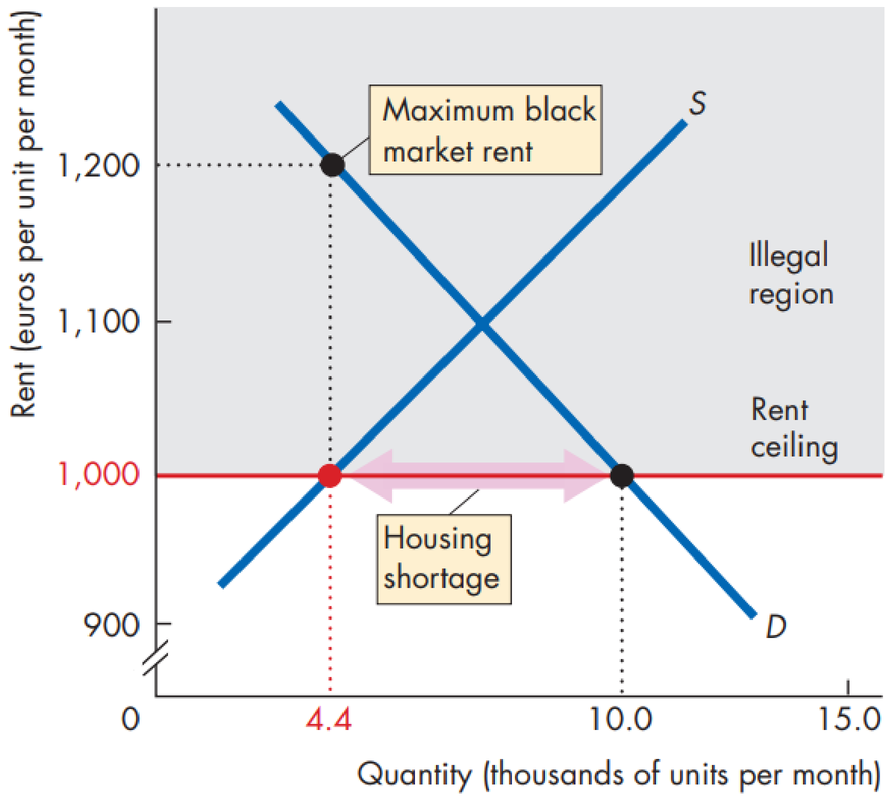
Figure 6.1 A Rent Ceiling



What effect does a rent ceiling have on a housing market?

- A rent ceiling can also encourage illegal trading in a black market.
- In an illegal market, price will be higher than the rent ceiling.
- The maximum price that someone is willing to pay in this case is 1200 euros
- Landlords can also use other tactics to charge extra, such as additional charges for garage, lifts etc.

Figure 6.1 A Rent Ceiling



What effect does a rent ceiling have on a housing market?

What about efficiency?

Because of the rent ceiling, there is underproduction in the market – an inefficient quantity of 4400 houses are traded

Consumer surplus shrinks

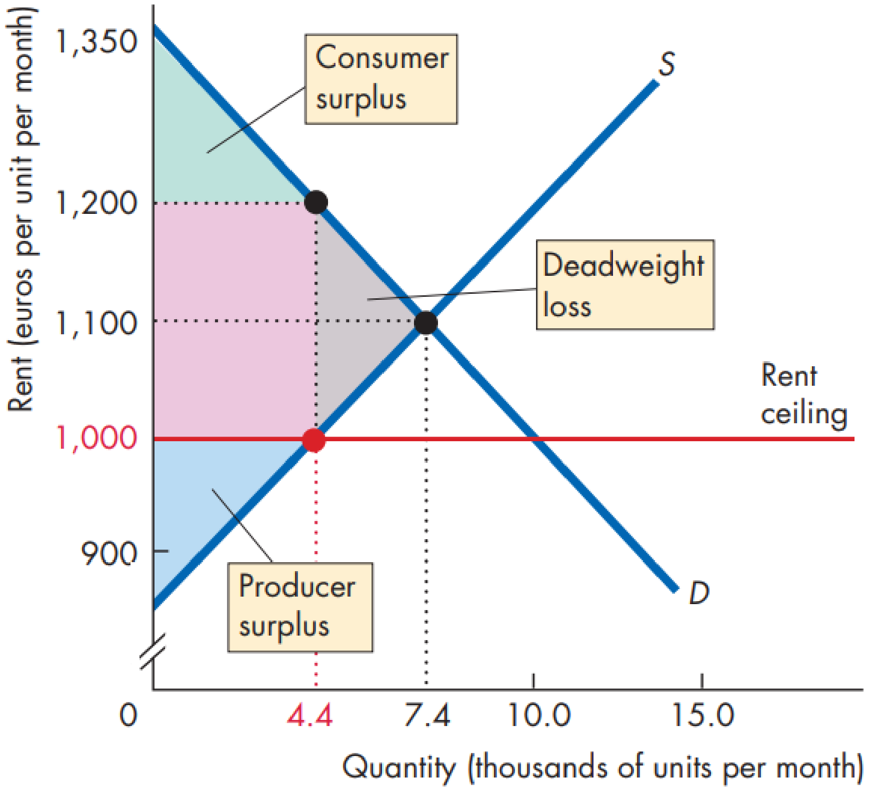
Producer surplus shrinks

Deadweight loss (grey triangle) arises

Increased search activity is represented by the red rectangle

Full loss from rent ceiling equals the deadweight loss (grey) plus the cost of increased search activity (red)

Figure 6.2 The Inefficiency of a Rent Ceiling



EDITORIAL

Mon Sep 25, 2023 06:21 PM
Last update on: Tue Sep 26, 2023 05:20 PM

Stop this charade of price control

Why expect different outcomes with the same flawed policy?

VISUAL: STAR

With prices of essential goods long having spiralled out of the reach of ordinary people, we are frustrated that the government's approach to stabilise the market continues to be short-sighted and ineffective. On September 15, the government fixed the prices of eggs, onions and potatoes as part of a bid to contain the runaway food inflation (which hit a 12-year high in August). But according to our report, none of these items are being sold at the set prices. This comes as no surprise to us – and it shouldn't to the authorities either – as the government's past attempts at price control have repeatedly fallen short of expectations, providing financial windfalls to market syndicates instead.

For instance, every year, the government fixes rawhide prices ahead of Eid-ul-Azha, and every year without exception, traders violate that cap, citing various reasons. In the agriculture sector, too, farmers inevitably end up paying more than government-set fertilizer prices. Meanwhile, LPG cylinders, fixed at Tk 1,284, are currently selling at Tk 1,600. Whether it's the transportation fares, dollar rates, or prices of soybean oil, sugar or IV saline, the story is much the same, with the only ones to have benefitted in the process being the traders.

Labor Market & Minimum Wages

- What is a price floor?
- A government regulation that makes it illegal to charge/pay a price lower than a specified level e.g. minimum wage

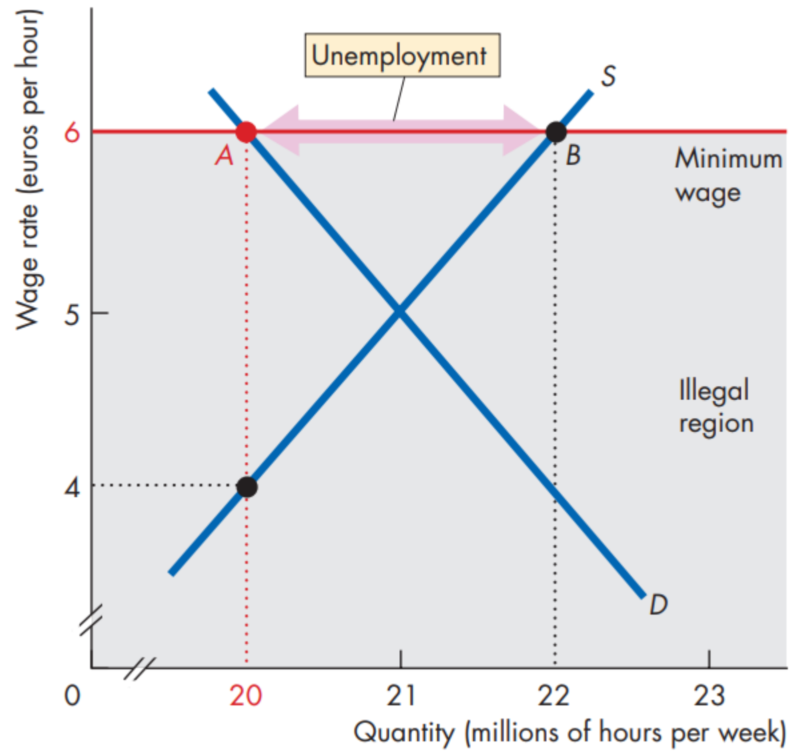
What effect does a minimum wage policy have on the labor market?

- If the price floor is set below the equilibrium price: no effect
- If the price floor is set above the equilibrium price:
  - surplus labor
  - unemployment

What effect does a minimum wage policy have on a labor market?

- Demand for labor is determined by firms looking to hire workers
- Supply for labor is determined by households – individuals looking for paid work
- In a labor market, when the wage rate is at the equilibrium level, the quantity of labor supplied equals the quantity of labor demanded.
- When price is set above the equilibrium price, quantity supplied exceeds quantity demanded leading to a surplus of labor in the market.
- Generally this tends to push price downwards and market would once again move towards the equilibrium.

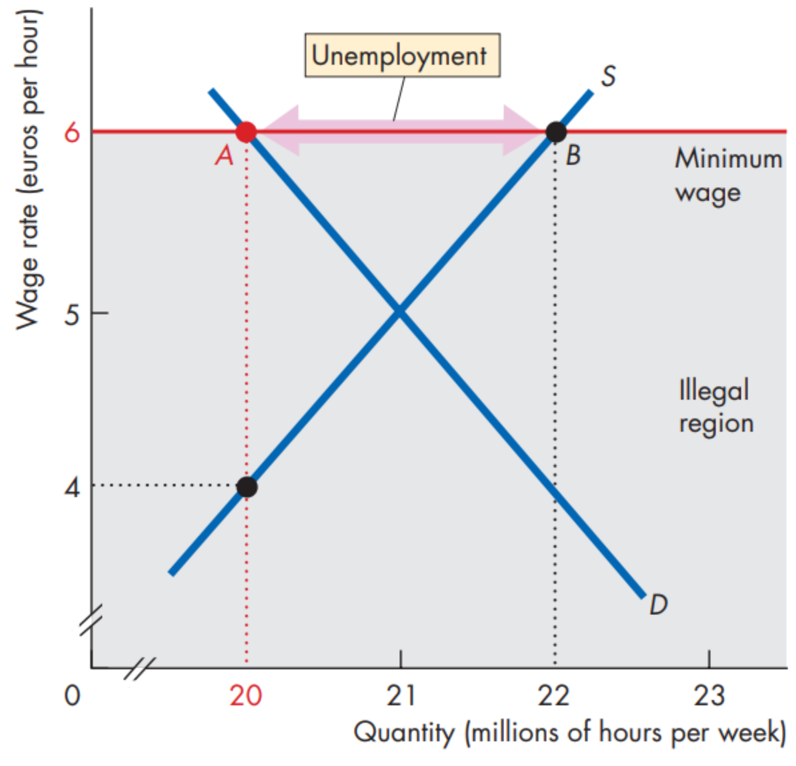
Figure 6.3 Minimum Wage and Unemployment



What effect does a minimum wage policy have on a labor market?

- Refer to the market on the right: The free market equilibrium wage is 5 euros per hour and quantity traded is 21 million hours per week.
- However in this case, imposition of the minimum wage at 6 euros means this price adjustment cannot take place.
- At the new wage, only 20 million hours are hired but 22 million hours are available in the market.
- This will create an unemployment of 2 million hours per week.
- Frustrated unemployed workers also spend more time and resources in looking for a job.
- With 20 million hours demanded, some workers are willing to work for as low as 4 euros an hour.

Figure 6.3 Minimum Wage and Unemployment



What effect does a minimum wage policy have on a labor market?

What about efficiency?

A minimum wage leads to an inefficient outcome

Firms' surplus shrinks

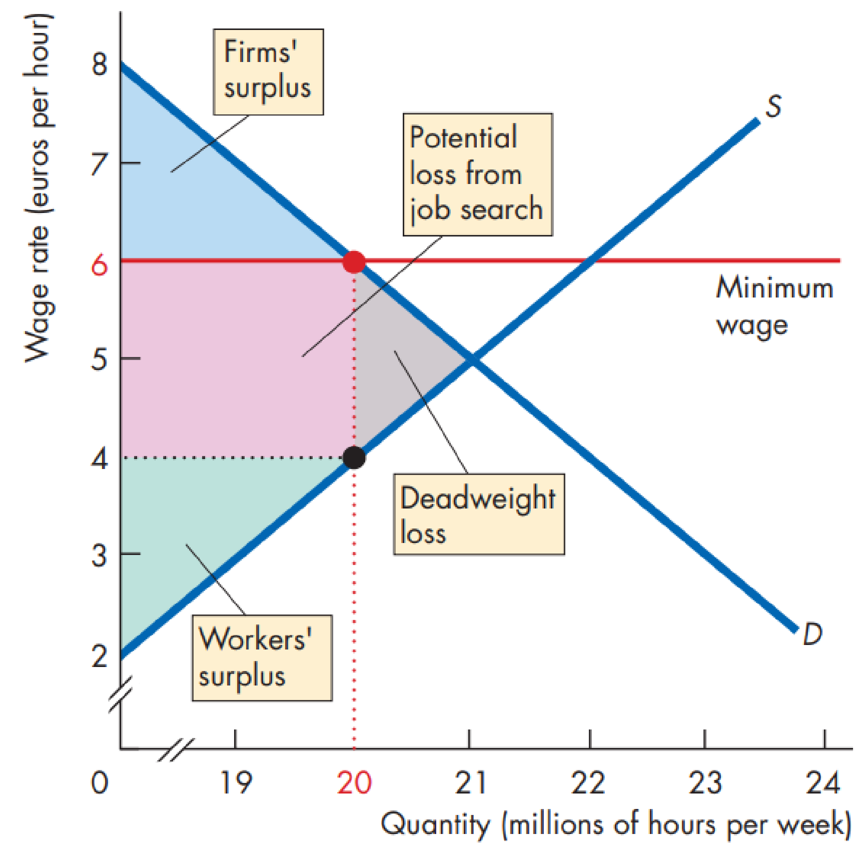
Workers' surplus shrinks

Deadweight loss (grey triangle) arises

Increased job search activity is represented by the red rectangle – borne by workers

Full loss from the minimum wage equals the deadweight loss (grey) plus the cost of increased job search (red)

Figure 6.4 The Inefficiency of a Minimum Wage



Taxes

- Everything we earn and everything we buy is taxed.
- Taxes are an important source of government revenue.

What are the different types of taxation?

- Taxes can be levied on individuals – such as income tax
- Taxes can be levied on firms – such as corporate tax
- Taxes can be levied on goods and services – known as sales tax
- Taxes can be levied on land and property – property tax
- Taxes can be levied on imported goods - tariffs

Who really pays for taxes?

- Not obvious and not determined by government
- In a free market, the amount that consumers pay for a good or a service and the amount received by the sellers is same.
- Taxes drive a wedge between this – consumers pay more, producers receive less. The difference between what consumers pay and what producers get is the total tax incidence.

Tax Incidence

- Tax incidence is the division of the burden of a tax between buyers and sellers.

Who really pays for taxes?

When the government imposes a tax on the sale of a good, there are three possible scenarios:

- the price paid by buyers might rise by the full amount of the tax – entire burden falls on buyers
- the price paid by buyers rises by a lesser amount – burden is shared between buyers and sellers
- the price paid by buyers does not change at all – entire burden falls on sellers

Who really pays for taxes?

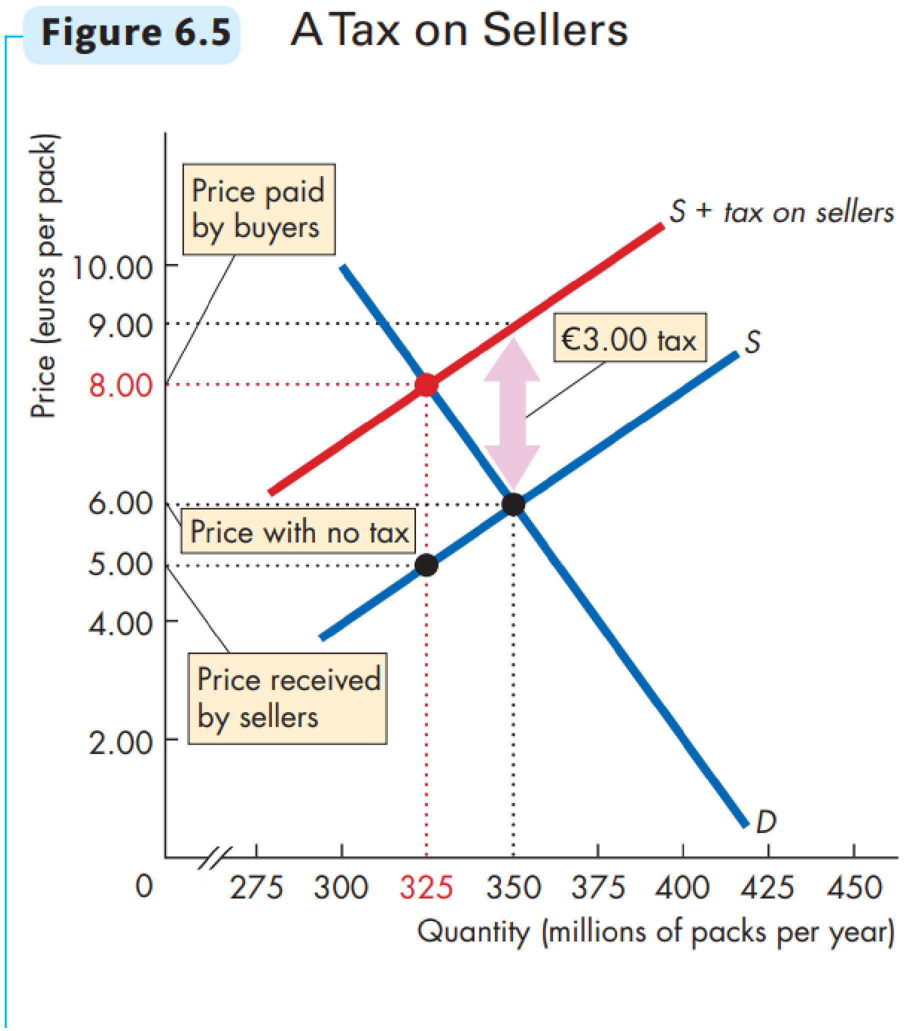
The government may impose:

Tax on sellers: Generally known as production tax. The supply curve shifts to the left (a tax is like an additional cost). For each quantity sold, the price that sellers are willing to accept increases by the amount of tax.

Tax on buyers: Generally known as a sales tax. The demand curve shifts to the left. For each quantity bought, the price that buyers are willing to pay decreases by the amount of the tax.

A tax on Sellers

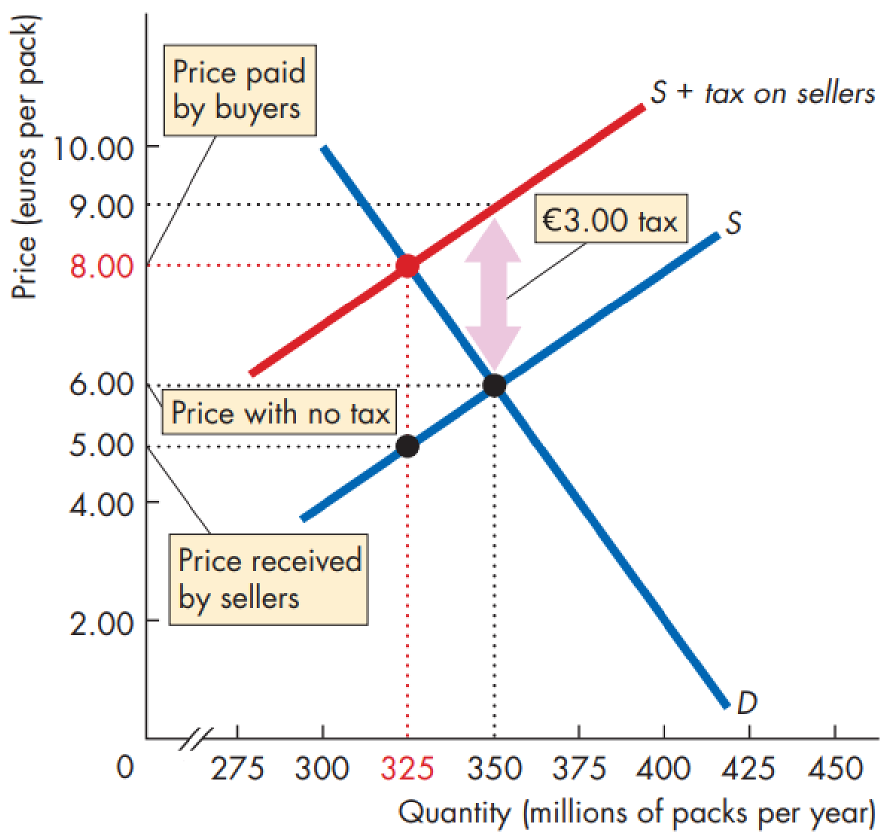
- Let's assume a tax of 3 euros is imposed on cigarette sellers
- With no tax, equilibrium price is 6 euros per pack and quantity traded is 350 millions of packs per year
- A tax on sellers decreases supply
- To determine the position of the new supply curve, we add the tax to the minimum price that sellers are willing to accept for each quantity sold



A tax on Sellers

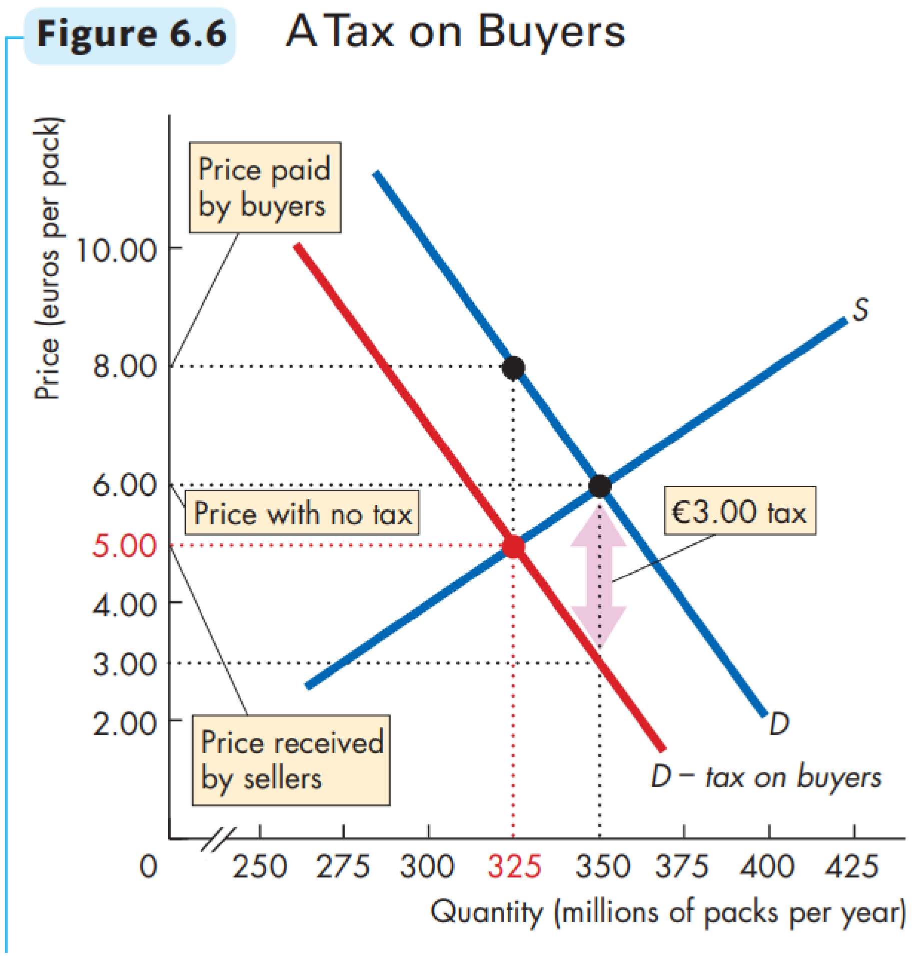
- With the tax, they will sell 325 million packs only at a price of 8 euros
- The price paid by buyers rises by 2 euros to 8 euros a pack.
- The price received by sellers falls by 1 euro to 5 euros a pack (They collect 8 euros but give out 3 euros in tax, so end up with 5 euros)
- Tax incidence: Buyers pay 2 euros while sellers pay 1 euro of the tax.

Figure 6.5 A Tax on Sellers



A tax on Buyers

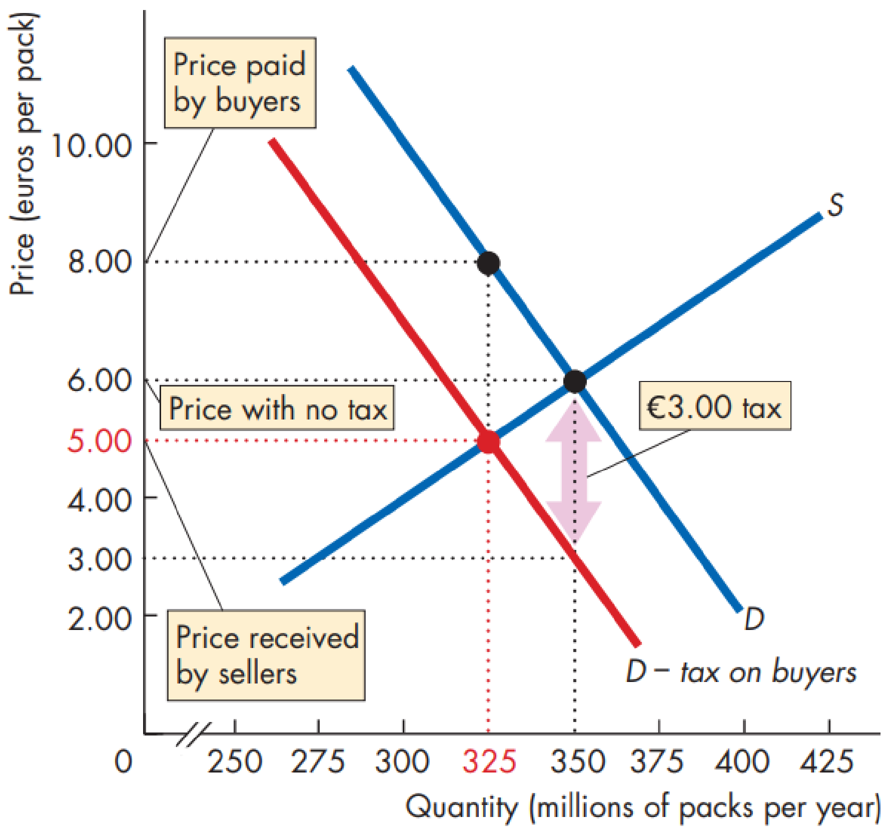
- Let's assume a sales tax of 3 euros is imposed on cigarette buyers
- A tax on buyers decreases demand
- To determine the position of the new demand curve, we deduct the tax from the maximum price that buyers are willing to pay for each quantity bought.
- With a 3 euros tax, they will buy 350 packs a year only if the price is 3 euros.



A tax on Buyers

- At the new equilibrium, 325 packs will be traded at a price of 5 euros per pack.
- The price received by sellers falls by 1 euro to 5 euros a pack
- The price paid by buyers increases by 2 euros to 8 euros (They pay 5 euros to the seller and 3 euros as tax)
- Tax incidence: Buyers pay 2 euros while sellers pay 1 euro of the tax.

Figure 6.6 A Tax on Buyers



Who really pays for taxes?

- Tax incidence (who pays tax) is the same regardless of whether the sellers pay or buyers pay.
- This is not determined by the government.
- In this case, buyers pay 2 euros and sellers pay 1 euro regardless of whether the tax is imposed on buyers or sellers.
- Tax incidence is determined by market forces.
- The division of the tax between buyers and sellers depends on the elasticities of demand and supply.
- In general, the more inelastic the demand for a good, the larger is the amount of the tax paid by buyers. Why?
- In general, the more elastic the supply, the larger is the amount of the tax paid by buyers. Why?

Who really pays for taxes?

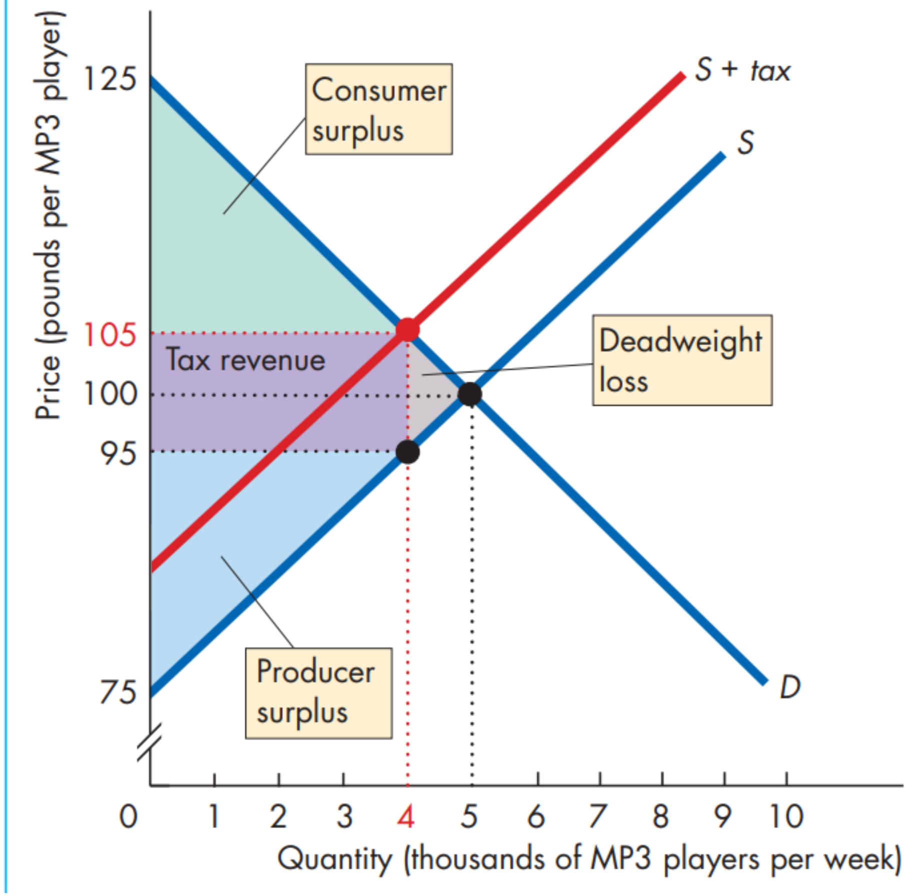
- Suppose that the government wants the burden of the cigarette tax to fall equally on buyers and sellers and declares that a €1.50 tax be imposed on each. What happens in this case?

- Try figuring out the four extreme cases:
    - Perfectly inelastic demand – buyers pay
    - Perfectly elastic demand – sellers pay
    - Perfectly inelastic supply – sellers pay
    - Perfectly elastic supply – buyers pay

Taxes & Inefficiency

- Consider a market for MP3 players
- With no tax (free-market), the market produces an efficient quantity of 5000 MP3 players a week at a price of 100 pounds per player
- Suppose the government imposes a tax of £10 on sellers of DVD players and the tax burden is shared equally between producers and consumers
- With the tax, the supply curve shifts to the S + tax (red) curve.
- This new supply curve does not show marginal social cost. It is only a transfer of resources to the government.
- Equilibrium quantity decreases to 4000 MP3 players a week
- Buyers pay £105 but sellers receive £95
- Both consumer and producer surplus shrinks
- Part of the loss of consumer surplus and producer surplus goes to the government as tax revenue (the purple area) and part becomes a deadweight loss (the grey area).

Figure 6.10 Taxes and Efficiency



Government support for producers

Three types of government interventions for producers (typically used for farmers)

- Production quotas
- Production subsidies
- Price supports

Government support for producers

A production quota is an upper limit to the quantity of a good that may be produced in a specified period. A production quota imposed below the equilibrium quantity has the following effects:

1. Decreases supply of the good in the market
2. Increases price level

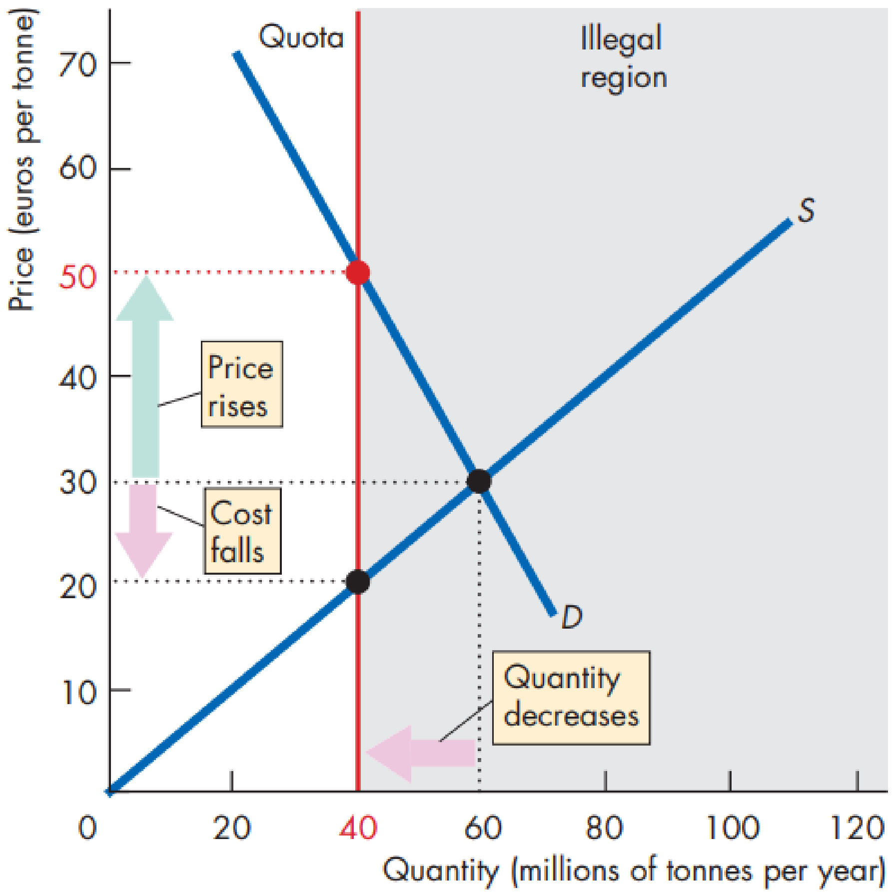
A production subsidy is a payment made by the government to a producer for each unit produced. A production subsidy has the following effects:

1. Increases supply of the good
2. A fall in price and increase in quantity traded

Production Quota

- With no quotas, the equilibrium price is 30 euros per ton and the equilibrium quantity is 60 million tonnes.
- A quota of 40 million tonnes a year decreases supply in the market.
- Any production in excess of the quota is illegal (grey region)
- At the quantity of 40 million tonnes, price rises to 50 euros per ton.
- Producers get higher prices and if demand is inelastic, their revenues also increase.

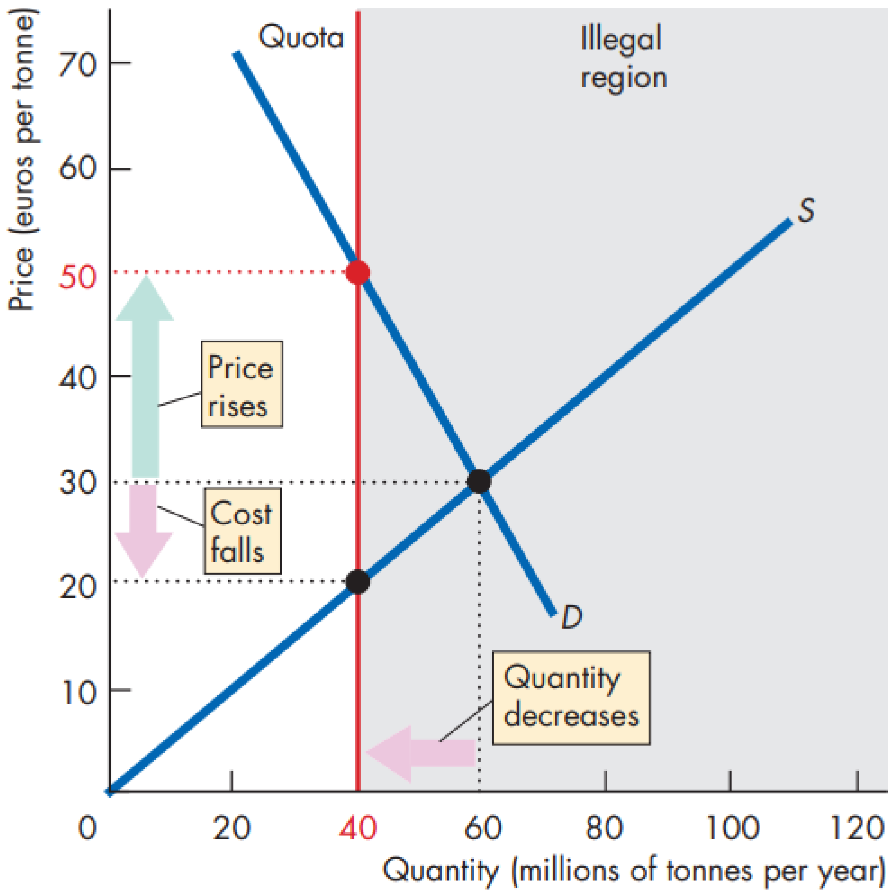
Figure 6.11 The Effects of a Production Quota



Production Quota

- At the new equilibrium, marginal social cost is less than marginal social benefit
- A deadweight loss arises from underproduction.
- Since MSC (20 euros) is lower than MSB (50 euros), each individual farmer has an incentive to cheat and produce more to make extra profits.
- How can the government ensure that total production does not exceed 40 million tonnes?
- Costly to implement a monitoring system

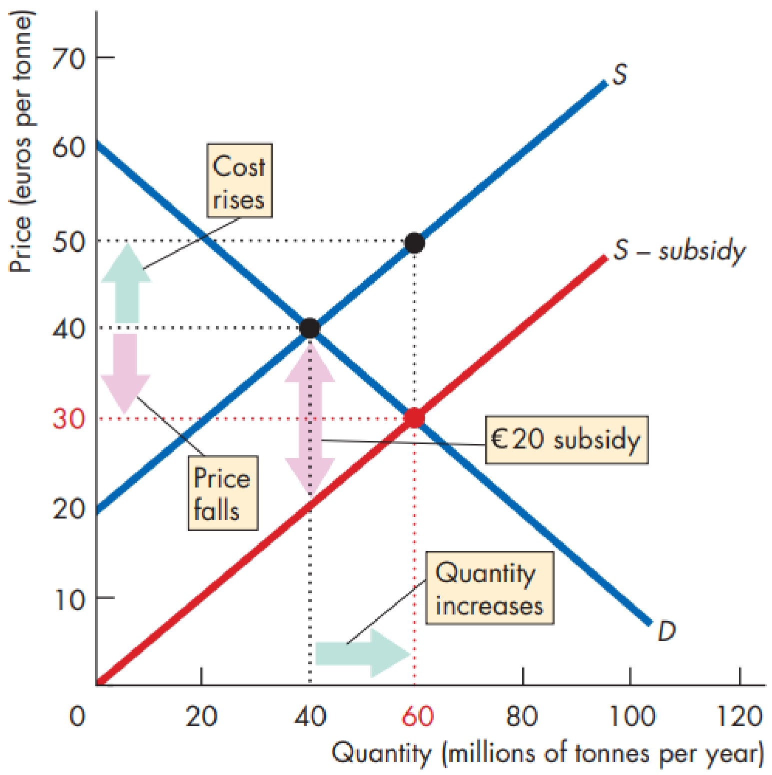
Figure 6.11 The Effects of a Production Quota



Production Subsidy

- Effects of a subsidy are opposite to the effects of a tax.
- With no subsidy, equilibrium quantity is 40 million tonnes a year and equilibrium price is 40 euros a ton.
- If government introduces a subsidy of 20 euros a ton, the cost of production decreases.
- As a result, supply increases.
- To determine the new supply curve, we subtract the subsidy from the farmers' minimum supply-price.
- With a production subsidy of 20 euros a ton, farmers will offer 40 million tonnes a year at 20 euros a ton.

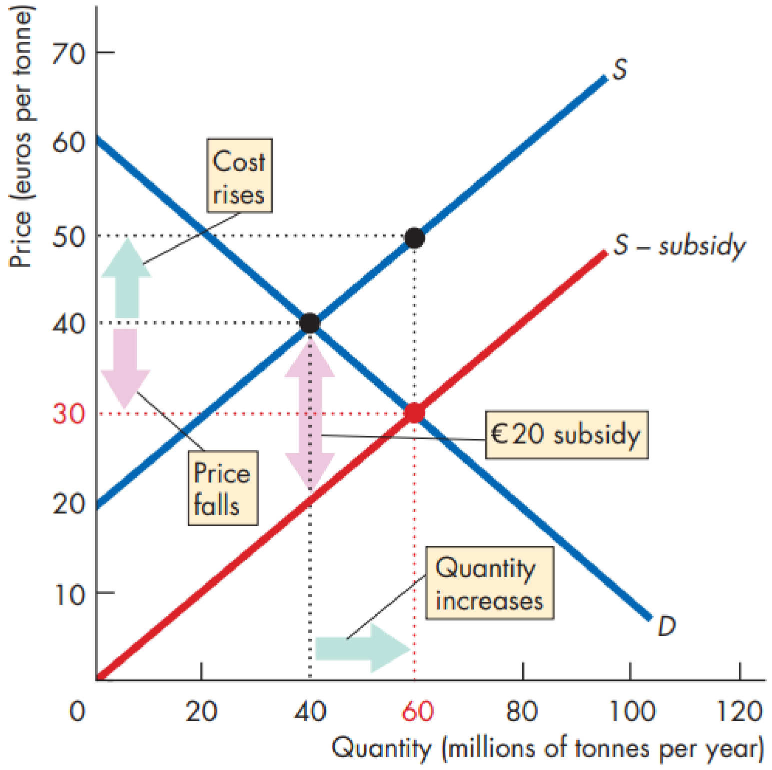
Figure 6.12 The Effects of a Production Subsidy



Production Subsidy

- The equilibrium quantity increases to 60 million tonnes a year, the price falls to 30 euros a ton
- The price plus subsidy received by farmers rises to 50 euros a ton
- To grow more sugar beet farmers use some resources that are less ideal for growing sugar beet
- A deadweight loss arises from overproduction

Figure 6.12 The Effects of a Production Subsidy



Example

Consider the market for Good X.

Demand: P = 80 - 2Q and Supply: P 40 + 2Q

a) Given the information, find the market equilibrium price and quantity for good X
b) Calculate the consumer surplus, the producer surplus and the total surplus for good X

Suppose the government decides to impose a tax of TK 10 per unit on good X which is shared equally between buyers and sellers

c) Given the tax, find the new price that buyers will pay and the new price that sellers will receive

d) Find the new CS, PS and TS

e) Calculate the tax revenue generated by the government and the deadweight loss from the tax